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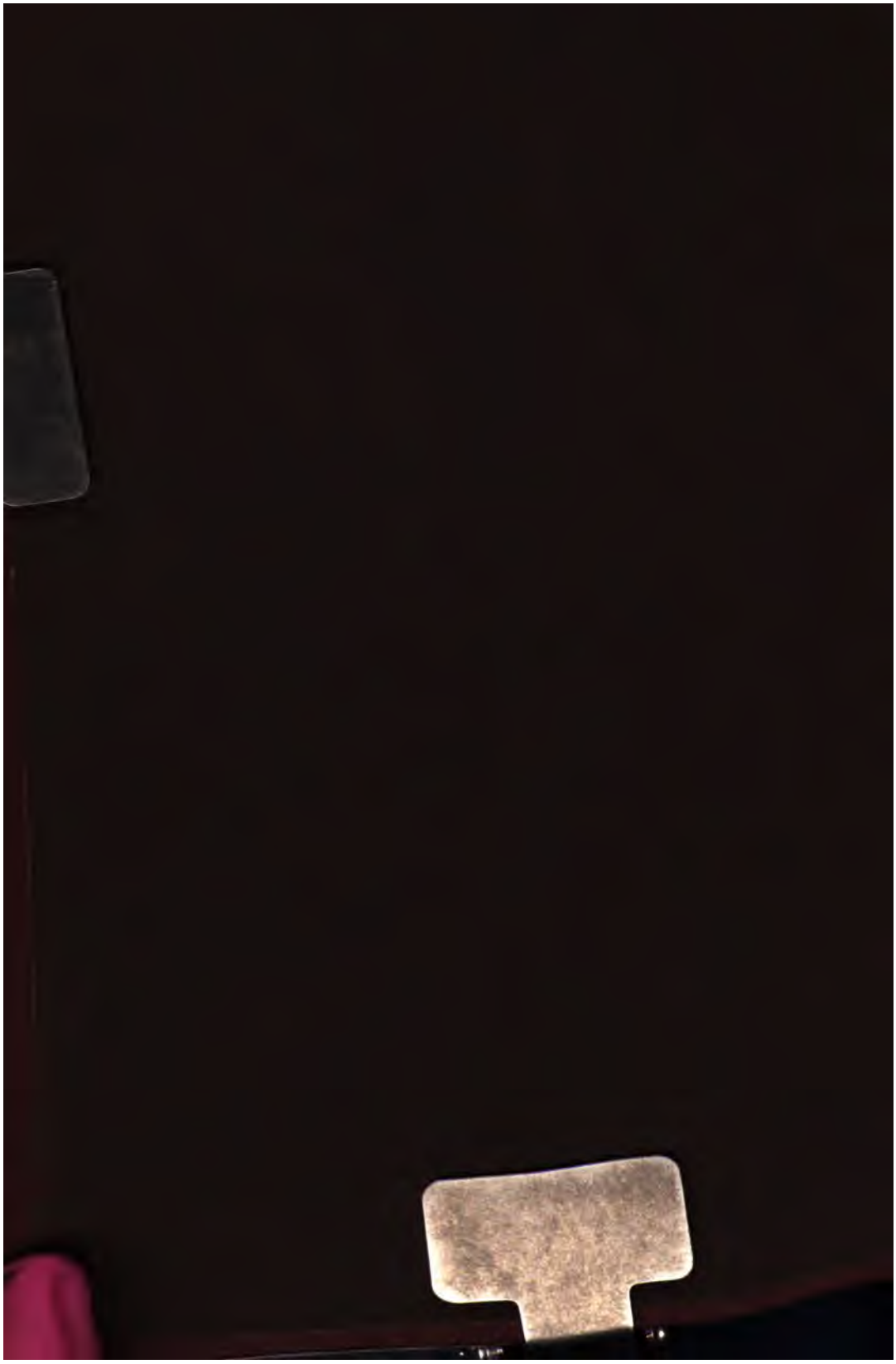

THE

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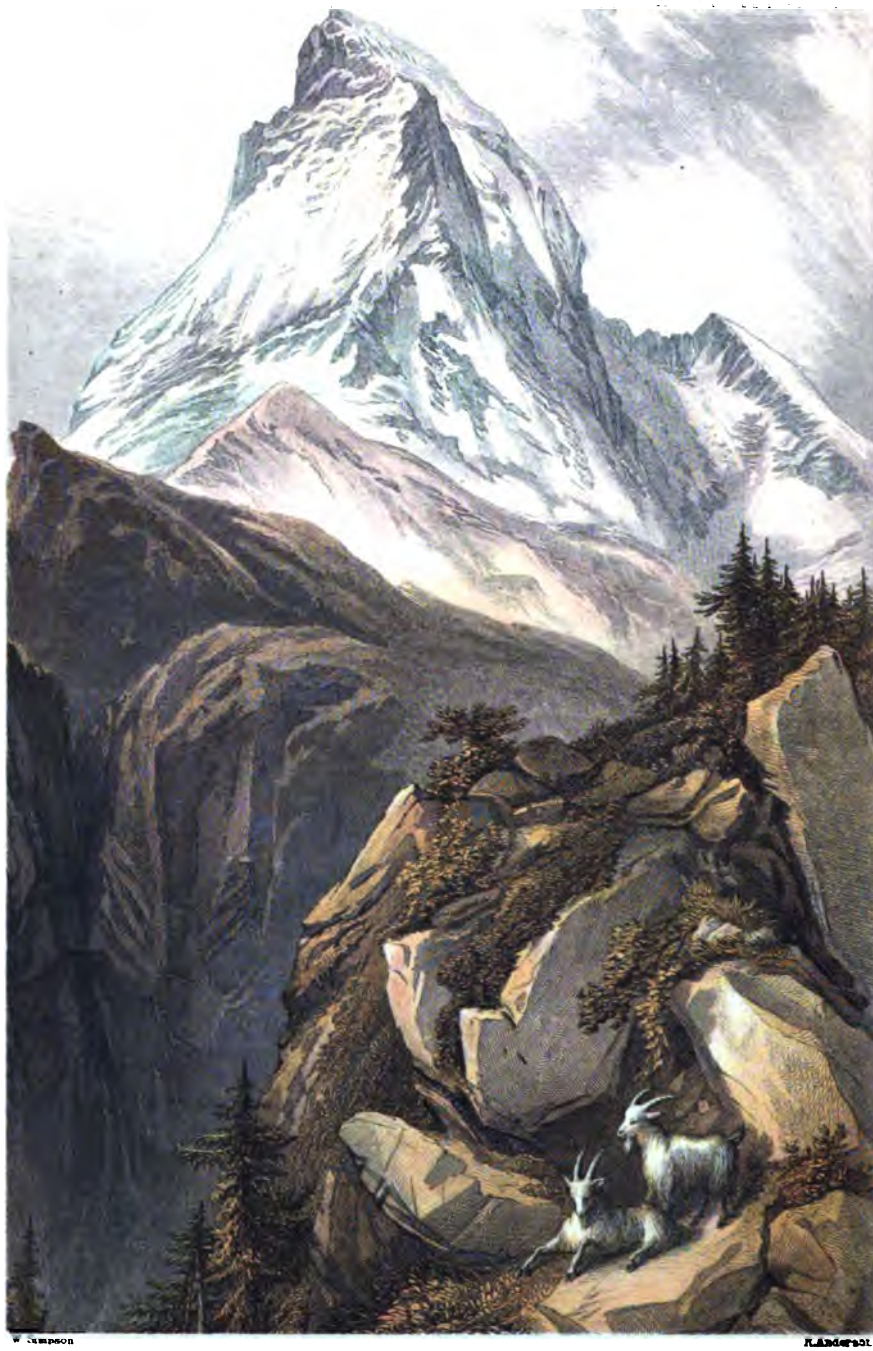

THE MATTERHORN, OR MONT CERVIN.
FROM ABOVE ZERMATT, SWITZERLAND.

THE

TWO HEMISPHERES:

A POPULAR ACCOUNT

OF

THE COUNTRIES AND PEOPLES OF THE WORLD.

BY

GEO. G. CHISHOLM, M.A.,

Translator of "Switzerland: its Scenery and its People."

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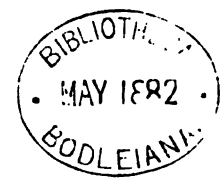

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PREFACE.

THE work to which the title of *The Two Hemispheres* has been given contains a complete account of the surface of our earth, its products, and inhabitants in greater or less detail. In the Introduction the general relations of land and water and the form and depth of the ocean-bed are considered; and the body of the work then opens with an account of the Polar regions both of the north and south. This is followed by a description of the continent of Europe as a whole, its superficial configuration, rivers and lakes, geology and minerals, climate, vegetation and zoology, people and political divisions; after which the different countries and regions composing that continent are described separately, and under each the same topics are treated in greater detail, while in addition notices are supplied relating to trade and commerce, means of communication, government and defence, the chief towns, and the historical vicissitudes of the territories which now compose the various political divisions of Europe. In the remainder of the work the other great land-masses of the earth, with the countries which they comprise, are each in turn treated of in the same manner as the European continent.

Numerous pictorial Illustrations, derived from authentic sources, accompany the descriptions, and tend to convey definite ideas in a manner that could not be accomplished without their aid. They consist of views of interesting localities, notable physical features, and characteristic groups of people representing the habits and social and out-door life of natives of various countries.

The author, while endeavouring to make an interesting and readable volume suitable for use in the family circle, has been careful to arrange the information in such a systematic manner, as also to adapt the work for use as a book of reference, and fit it for a place in the study, the library, and the counting-house. A copious Index has been added.

GLASGOW, *November*, 1881.

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THE TWO HEMISPHERES.

INTRODUCTION.

LAND AND WATER: THEIR RELATIVE EXTENT AND DISTRIBUTION.

The surface of the earth is composed of two parts, a land-surface and a water-surface, the latter of which is by far the larger, the land-surface being surrounded by a vast body of water in comparison with which even the continents appear dwarfed. Along the line of the equator the Pacific Ocean alone exhibits unbroken continuity through more than 150 degrees of longitude, or above 10,000 miles, which is more than two-fifths of the earth's circumference; and in a direction at right angles to this, along the line of a meridian passing through Behring's Straits, the waters of the same ocean are uninterrupted by land for an equal if not a greater distance. Altogether the waters of the ocean are estimated to cover about eleven-fifteenths, or nearly three-fourths, of the entire surface of the globe, leaving not much more than one-fourth for the land-surface including lakes and inland seas.

The true relationships of land and sea, however, are best appreciated by regarding the water as occupying the hollows or depressions which occur in the irregular surface of a spheroidal body. Where these depressions are of great extent the water forms oceans or seas; where they are of smaller dimensions it penetrates the land, forming inclosed or partially landlocked basins, as inland seas, gulfs, channels, and the like. The relative areas of adjacent land and sea, with the external contour of each (that is, coast-line), depend upon the respective elevation of the one above the other; and observations made within historical times, but still more the established conclusions of geological science, have made it certain that the amount of this elevation is very far from being invariable. Formerly it was a common opinion that the variations in the elevation of the solid crust of the earth were so great as to cause oceans and continents entirely to change places; but Dana, Wallace, Darwin, and others have adduced strong evidence for believing that, though there is no part of the land that has not repeatedly been under water, yet the great land-masses and the great oceans have as a whole retained their present positions throughout all geological time, and this conclusion seems to be now pretty generally accepted by geologists. "The more attentively," says Prof. Geikie, "the stratified rocks

of the crust of the earth are studied, the more striking becomes the absence of any formations among them which can legitimately be considered those of a deep sea. They have all been deposited in comparatively shallow water. . . . From the earliest geological times the great area of deposit has been, as it still is, the marginal belt of sea-floor skirting the land." From these facts the only conclusion that can be drawn is that each of the sedimentary formations of which we know that the earth's crust mainly consists, can have come into existence only because in immediate contiguity to the site where it was deposited there already existed a greater or less extent of land to furnish the materials for its deposition, and to afford in its submarine slopes the basis on which the formation was to rest. Nevertheless it is quite certain that changes of elevation, sufficiently great to bring about the most extensive alterations in the outline of sea and land, have been constantly taking place, and it is equally certain that changes operating in the like direction are still in progress. A few hundred feet of rise in the level of the ocean-bed would in some cases convert what are now shallow seas into inland plains; and an equal amount of subsidence would cause the sea to flow over what are now extensive river-basins. In either case the contour of land and sea would be completely altered.

A consideration of the distribution of land and water in the present geological epoch brings to light the following prominent facts to which Ritter calls attention in his *Comparative Geography*:—Whether we divide the globe into northern and southern or eastern and western hemispheres, their relative amounts of land and water are found to be different. The northern hemisphere contains roughly 75 per cent of the land-surface and 41 per cent of the water-surface of the globe, the southern accordingly 25 per cent of the former and 59 per cent of the latter. The eastern hemisphere contains 71 per cent of the land-surface and little more than 42 per cent of the water-surface, so that the western comprises 29 per cent of the former and nearly 58 per cent of the latter. From these figures it will be seen that the greatest mass of land lies in the northern hemisphere, if we divide the earth in one way, and in the eastern hemisphere if we divide it in another; the smallest mass, in the southern and the western. In the north-east the watery realm is the most contracted, in the south-west the least. We are thus enabled to speak of the land side of the globe or land hemisphere, and the water side or water hemisphere. The central point of the water hemisphere is at the island of New Zealand. Toward this hemisphere the points of all the continents are directed. The centre of the land hemisphere is in the north-west of Europe, at a point near the south-east of England, the north-east of France, and the coast of Holland. The dwellers around the North Sea are the antipodes of the New Zealanders. Great Britain is the country which, as a whole, is the middle point of the continental world.

The land is broken up into masses, varying in size, and called, arbitrarily, continents and islands. Strictly speaking, there are but two continents, the Old World forming one, the New World the other. Australia may be called the smallest continent or the largest island; it is the connecting link between the forms, and shows at a glance the arbitrary nature of the distinction.

With equal arbitrariness the great body of water surrounding the land is divided into smaller bodies of water known as oceans. The names Pacific, Atlantic, Indian, are convenient terms by which to distinguish the great bodies of water which divide the land-masses of the Old and New Worlds, and which intervene between the former and the southern continent, Australia. But they have no definite limit to the southward, and the belt of the Southern Ocean, to which the waters of all three are common, stretches round the globe. Of the Arctic Ocean the portion that washes the shores of Northern Europe and Asia is obviously a prolongation of the Atlantic, and in respect of its currents and other conditions must be treated as a portion of the Atlantic basin. Of the Polar Seas, strictly so called, the superficial limits—to say nothing of other conditions —are as yet only partially determined.

The table at the end of this paragraph gives an interesting comparative view of the relative areas of the divisions of the land and water surface of the globe. Columns I. and V. show the ratio per cent of the respective divisions to the total land-surface, columns II. and VI. the same ratio to the total water-surface of the globe; columns III. and VII. show the ratio of the various divisions to the area of Great Britain as 1, that area being in round numbers 90,000 square miles; and column IV. exhibits the estimated population of the divisions of the land and of the whole land-surface per square mile. Columns I. to IV. are based on the figures contained in the sixth number of Behm and Wagner's *Bevölkerung der Erde* (Gotha, 1880), and V. to VII. on the results of planimetrical calculations[1] by Dr. O. Krümmel of Göttingen communicated to Petermann's *Mittheilungen* (July, 1881). In the table which forms the basis of the first four columns Iceland, Novaya Zemlya, the New Siberian Islands, and the archipelago in the north of America are all included in the Arctic Regions, and accordingly not included in the continents of Europe, Asia, and America respectively, and the portion of the lieutenancy of the Caucasus north of the Caucasus Mountains is reckoned to Asia instead of Europe; and in the table which forms the basis of columns V.–VII. the seas off the Atlantic comprise the Baltic Sea, the German Ocean, the British waters, the Mediterranean and Black Sea, the Gulf of St. Lawrence, the Gulf of Mexico, and the Caribbean Sea; the seas off the Indian Ocean comprise the Red Sea, the Persian Gulf, and the seas between Australia and Asia; and those of the Pacific consist of the border seas in the east of Asia, (including Behring's Sea) and the Gulf of California. Hudson's Bay and the White Sea are included in the Arctic Ocean. The total area of the land-surface as given in the *Bevölkerung der Erde* is equivalent in round numbers to 52,534,000 square miles, that of the water-surface, as calculated by Dr. O. Krümmel, to 144,430,000 square miles.

[1] As there will be frequent occasion in the body of this work to refer to the planimeter and planimetrical calculations, it will be of advantage to mention here that the planimeter is an instrument for measuring the area of any plane surface laid down on a map or plan, so contrived that when a tracing point has been made to describe the outline of the surface as figured, the area is indicated on an index relatively to the scale of the map or plan, after which the actual area can easily be found by a simple arithmetical operation.

Land-surface.	I.	II.	III.	IV.	Water-surface.	V.	VI.	VII.
Europe,	7·1	2·6	42	84	Atlantic Ocean,	58·6	21·3	342
Asia,	32·8	11·9	191	48	Seas off Atlantic,	6·6	2·4	38
Africa,	22·0	8·0	128	18	Indian Ocean,	53·9	19·6	315
America,	28·2	10·3	165	6½	Seas off Indian Ocean,	6·6	2·4	38
Australasia and Oceania,	6·6	2·4	38	1	Pacific Ocean,	118·5	43·0	691
					Seas off Pacific,	4·6	1·7	27
Arctic and Antarctic Regions,	3·3	1·2	19	—	Arctic Ocean,	11·2	4·1	65
					Antarctic Ocean,	15·0	5·5	88
Total	100·0	36·4	583	28	Total	275·0	100·0	1604

Interesting results are also brought out by a comparison of the estimated mean depth of the ocean and the estimated mean elevation of the land-surface above sea-level. According to Sir Wyville Thomson "the average depth of the ocean bed does not appear to be much more than 2000 fathoms;" and taking into account the shallower border-seas Dr. Krümmel calculates the mean depth of the total water-covering of the earth at 1880 fathoms or about 11,300 feet. The mean height of the different continents, that is, the height which each of them would attain if all their inequalities were evenly spread over the surface, has been estimated by Gustav Leipoldt, in the case of Europe on the ground of careful calculations from tolerably satisfactory data, in the case of the other continents on the basis of data of a more problematical character. The results he arrived at are, for Europe a mean height of about 985 feet, for Asia and Africa each 1640 feet, for America 1345 feet, and for Australia 820 feet. From these results he deduces a mean height for all the continents of about 1445 feet, which would be brought up to 1555 feet if we accepted Dr. Josef Chavanne's calculation for Africa (2170 feet) in place of that of Leipoldt. On the assumption of a mean height of 1445 feet for all the continents Leipoldt further calculates that if all the solid matter belonging to them were pared away so as to reduce them to the ocean level, and if that matter were all poured into the North Atlantic Ocean, which has rather more than one-fourth of the aggregate area of the continents, the effect would be only to reduce the mean depth of that ocean from 2086 to 1163 fathoms. Even if the larger figure were taken for the mean height of the continents, the North Atlantic would still have a mean depth of nearly 1100 fathoms after receiving all the solid matter which raises the mean height of the continents above sea-level.

The significance of these facts is perceived when we consider the continents of the earth in relation to the solid crust apart from the water-covering. Bearing these facts in mind and viewing the earth in this way we see that these continents must be regarded as vast plateaux rising to an immense height above the general level of the solid crust, and that the mountains that rise to a still greater height above the land-surface are, in respect of their mass, relatively only insignificant inequalities.

THE OCEAN-BED.

The deep-sea soundings so numerously taken within recent years have added greatly to our knowledge of the ocean-bed. This (as had, indeed, been surmised) is proved to exhibit like inequalities to those presented by the surface of the land, though with less abruptness of outline. The sea-bottom has its various slopes, its extended plains and plateaux, its mountain chains, detached peaks, and areas of relative depression. The average depth of the ocean is, however, less than had been, until very recently, supposed; and it is admitted that the earlier observations directed to the ascertainment of depth were untrustworthy—owing mainly to the difficulties in the way of reaching the bottom by a line which should descend vertically, or so nearly so as not to vitiate the desired result. Formerly depths of 40,000 or 50,000 feet were reported, but this was owing to defective sounding apparatus.

The geography of the Atlantic is now pretty well known. About midway between its opposite shores, those of North and South America on the west and those of Europe and Africa on the east, there extends a ridge in a zigzag shape from about the latitude of southern Ireland to at least lat. 40° S. In the north this ridge is connected with a broad plateau which connects Europe with Iceland, and from the plateau it proceeds, under the name of the Dolphin Rise, first south then south-west to about the latitude of the north coast of South America, where it turns sharp east-south-east, in which direction it continues to about lon. 10° W., where it finally takes a southerly direction. Whether at the southern extremity it is connected with the Antarctic plateau has not yet been ascertained. The depth of the ridge below the surface is from 1000 to 2000 fathoms. On the east side of the ridge a basin with an average depth of about 2500 fathoms extends from the northern plateau to about the Cape of Good Hope, where it is bounded by another ridge stretching transversely from a point near the southern extremity of the main ridge to the eastern coast. The western submarine valley is divided into two basins by a short ridge connecting the first angle of the main ridge with the north-east coast of South America. Of these two basins the northernmost has an average depth of about 3000 fathoms, and in this portion are the greatest depths that have yet been sounded in the whole ocean. These are found in the section between the Bermudas and the island of St. Thomas, where in some parts the bottom sinks to a depth of nearly 4000 fathoms. The other basin on the west side has also an average depth of about 3000 fathoms. On both sides of the Atlantic the depth increases, as a rule, pretty gradually from the coast. The part at which the fall is most rapid is off Pernambuco on the north-east of South America, where within little more than a degree of longitude the ocean attains a depth of about 2000 fathoms. The British Islands lie on an elevation which includes the whole of the North Sea, and gradually sinks on the east down to the deep channel which borders the coast of Norway from the Skager-rak to Cape Stat,

and on the north to another deep submarine channel which stretches from Shetland to the Faroe Isles. The Bahamas and West Indies lie on similar elevations on the south-west of the North Atlantic basin.

The soundings in the Pacific Ocean have not yet been made in sufficient number to give us as complete a knowledge of its bed as we possess of that of the Atlantic. The eastern portion between 20° N. and 30° S. lat. and 75° and 140° W. lon. still remains almost entirely unexplored, but a good deal of information regarding the remainder of this great body of water has been derived from the soundings of the British exploring ship *Challenger*, the German ship *Gazelle*, and the American ship *Tuscarora* (1874–76). This portion of the Pacific is found to cover numerous banks or elevations on which strings and groups of islands and islets rest, separated from one another by basins of great depth, in some of which deeper soundings have been made than in any other part of the surface of the globe. The greatest depth that has yet been sounded by means of reliable apparatus was found by the *Tuscarora* close to the Kurile Islands in lat. 44° 55′ N., lon. 152° 26′ E., where the sounding-line sank 4655 fathoms or 27,930 feet, which is rather more than a thousand feet less than the height of the highest mountain in the world. The eastern shore of the Pacific is remarkable for the rapidity with which the depth increases from the coast outwards. Unlike what is found on the shores of the Atlantic and the western or Asiatic shore of the Pacific, soundings of 1500 fathoms are found in many places within fifty nautical miles of the American shore of the latter ocean.

In the southern part of the Indian Ocean a submarine plateau stretches between about lat. 35° to 65° S. and lon. 20° to 120° E., at an average depth of less than 1500 fathoms below the surface. The principal depression basin of this ocean extends from about 60° E. lon. to the angle between Australia and Java in about 110° E. lon., and has an average depth of more than 2000 fathoms, with occasional soundings of from 2500 to 2900 fathoms. The soundings in the Antarctic Ocean are still very few, and are almost entirely due to Ross (1840–43). For the most part they do not exceed 500 fathoms, and seem to indicate a general rise of the ocean-bed towards the polar circle.

ARCTIC AND ANTARCTIC REGIONS.

ARCTIC REGIONS.

The name of Arctic Regions has been given to the regions round the North Pole from the Greek *arktos*, a bear, from the name of the well-known constellation near the north pole of the heavens. The limit of these regions is the arctic or north polar circle, in lat. 66° 30′ N., the arctic regions being in fact identical with the frigid zone. Within this limit are comprised an extensive area not yet explored all round the north pole, an extensive water area to which the name of Arctic Ocean is given, and the most northerly parts of all the three northern continents, together with a large number of islands.

ARCTIC OCEAN.—There are three routes by which the interior parts of this ocean can be approached, one between Norway and Greenland on either side of the islands of Spitzbergen, one between Greenland and America, and the third through Behring's Strait. It is by the first two routes that the highest latitudes have been reached, explorers having ascended by both of them to beyond 82° N. lat. So far as it has yet been explored the bottom of the Arctic Ocean seems to consist, on the American and Asiatic sides, of a continuation of the extensive plains forming the northern parts of the adjoining continents, while the deepest part of the ocean is a basin lying between Greenland, Iceland, Norway, and Spitzbergen, for the exploration of which we are mainly indebted to the Norwegian expeditions made in the ship *Vöringen*, in 1876-78, under the direction of Prof. Mohn, of Christiania. This depression basin extends a considerable way below the arctic circle to about lat. 63° N., and even to lat. 60° N. between the Shetland and the Faroe Islands. The southern boundary of this basin is the submarine ridge already mentioned in the Introduction as connecting Iceland with Europe, and as this ridge cuts off from the Atlantic and the North Sea the cold bottom waters of the Arctic Ocean, it may not improperly be regarded as the southern boundary of the latter ocean in this quarter. The greatest depth that has been found in this basin is 1861 fathoms.

In the numerous channels between Baffin's Bay and Behring's Strait, the tides are regular but feeble. On the other hand, tides rising twenty-four feet have been observed north of Smith's Sound. **Cold currents** flow down from the Arctic Ocean by all the channels by which it communicates with the two great oceans, and **warm surface currents** enter it by the north of Norway and by Behring's Strait, the latter being respectively the drift of the Gulf Stream and the Japanese Stream. The water of the Arctic Ocean is extremely pure, shells being distinctly visible, it is said, at a

depth of 80 fathoms. It also presents rapid transitions of colour, chiefly from ultramarine to olive green, the latter produced by myriads of minute animals, belonging for the most part to the Mollusca and Cœlenterata.

The presence of **ice** over a great part of the surface during the whole year is the great distinguishing feature of both the Arctic Ocean and the corresponding ocean round the south pole called the Antarctic, and has constituted the obstruction which has hitherto baffled all attempts to penetrate into their inmost recesses. It appears in three forms: in that of **ice-fields** covering extensive areas, often broken into smaller fields called **floes**; in that of **drift-ice**, consisting of smaller blocks of ice produced by the action of storms at the edge of ice-fields, and often forming a border many miles in breadth; and in that of **icebergs**, or lofty masses of ice, for the most part dropped into the sea from

The Origin of Icebergs.

the extremities of glaciers descending to the water's edge. The temperature at which sea-water freezes is about 25° Fahr. When the freezing is gradual the salt is almost entirely eliminated as the process goes on; but if the freezing is rapid a considerable quantity of salt becomes frozen in, and the ice formed is in consequence a tough and pliable mass. This is nearly always the case with the ice first formed, for when the necessary degree of cold has set in, salt water freezes very rapidly to a depth of about a foot. Not long after, however, the salt begins to form in crystals on the surface, and ice a foot thick may be seen covered with a layer of salt one or two inches in depth. Even after this the ice remains soft and yielding, and its surface wet for several days. When in this condition it readily forms into undulations and folds under the action of the water, making it appear as if the waves of the sea had been arrested in the act of swelling.

The formation of ice-fields is not the still and silent process that one is apt to suppose, but, on the contrary, a scene of constant noise and movement, especially during the prevalence of winds. It begins about the end of September,

when the summer is gone. The remains of last year's ice become thicker and thicker every day. Ice-floes and larger fields carried along by the wind come into frequent collision, and through the force of the shock the colliding masses are sometimes shattered, the fragments to a large extent passing under one another, sometimes made to adhere together and form larger fields, a wall of ice rising up to mark the line of junction, while a still larger wall sinks down below. When several fields come into collision large floes are sometimes forced bodily under adjoining fields, or are tilted up in the air and fall back with a crash. As the fields grow in this way their movements become only the more rapid and their collisions more violent, for every ice-wall and other inequality acts as a sail to catch the wind. Even during calms there is no absolute rest. The fields then grow larger through separate floes becoming connected by new ice which forms between them, but as the cold increases it causes them to be rent asunder through the contraction which the cold brings about. When that takes place the fragments move apart and collisions ensue in the same manner, though not with the same violence, as under the action of the winds. In the course of the winter the fields of ice grow larger and larger, and thicker and thicker. In the depth of winter they stretch away unbroken to the horizon, and their thickness, in consequence of the numerous superpositions, is from 3 to 6 feet above the surface of the water, and from 18 to 24 feet below it. Lieutenant Weyprecht, one of the commanders of the Austro-Hungarian ship *Tegetthoff*, which made explorations in the Arctic Seas in 1872–74, records that their ship was caught in drift-ice on the 22d of August, 1872, and that, soon after, their ship was frozen in, in the middle of a floe, with which they were carried about hither and thither by the wind, and to which they remained confined till the summer of 1874, when they were able to make good their return to Europe, but only by leaving their ship fast bound in the same field of ice. For nearly six months after the day on which they first found themselves at the mercy of the ice and winds they were the witnesses almost every day of gigantic movements in the ice, by which their ship was again and again menaced with destruction. The last of these movements took place on the 18th of February, by which time the

The Alert in the Ice.

floe had grown to a vast ice-field, the boundaries of which could not be seen on any side from a height of 70 feet. The limit of the ice-fields and drift-ice, like all other ice-limits, varies in different years according to the temperature and local circumstances. Ice is nearly constant everywhere between Greenland and Spitzbergen, and on the east coast of Greenland down to its southern point. East of Spitzbergen and near Novaya Zemlya the sea is always beset if not completely barred by ice. In Baffin's Bay, and thence westwards to Behring's Strait, our numerous expeditions have had a perpetual struggle with ice. The mean external limit of the ice-fields at a distance from land may perhaps be placed about lat. 75° N. Some geographers long held to the idea that an open sea

Glacier in Bell Sound, West Coast of Spitzbergen.

would be found within the ice-barrier nearer the pole, but it seems now to be pretty generally admitted that this supposition rests upon a very meagre basis of facts, and that probabilities are all against it. The ice-limit is found furthest north in the south-west of Spitzbergen, where, about the meridian of 12° E., even drift-ice is seldom seen below lat. 75° N. The explanation of this circumstance is to be found in the influence of the warm south-westerly currents which find their way up to this region between Iceland and Norway, causing the isothermal which indicates an annual mean temperature of 32° Fahr. to ascend in the north of Norway to beyond 70° N.

Icebergs, after breaking off from the parent glacier, are gradually carried by winds and currents into warmer latitudes, where they melt away. Their general course is from north-east to south-west. They are sometimes miles in length, and rear their heads to a height of perhaps 300 feet above the surface of the sea, the portion above water being calculated at about one-third or one-fourth of the whole. In melting they deposit at the bottom of the sea, one after another, the fragments of rock and accumulations of detritus which they usually carry with them from the parent glacier, and which were originally derived from

the mountains by which the glacier is inclosed. When the upper portion has melted in such a manner that the equilibrium is destroyed they fall over with a tremendous crash, and the portion previously under water becomes exposed to the air and then begins in like manner to melt at a greater rate. Icebergs are frequently encountered in the North Atlantic, as well as in the southern seas, and have been the cause of many a wreck. A strange effect is sometimes produced by icebergs being reflected in the form of immense dark shadows on the sky.

The presence of ice in the polar regions can be detected at great distances when the ice itself is not in sight by what is called the **ice-blink**, which is a bright yellowish tint near the horizon, caused by the reflection of the snow-covered ice on the sky. In certain circumstances this appearance is discernible even when the ice lies from twenty-five to thirty miles beyond the horizon.

LAND.—With the exception of the portion belonging to Norway and Sweden in Europe, which is mountainous, and the north-west portion of America, and the neighbouring portion of Asia in the north-east, which are hilly, the continental tracts of the Arctic Regions agree in being remarkably low-lying plains. The largest isolated portion of land belonging to the Arctic Regions is Greenland, regarding which, however, it is not known whether it is a separate island, or island group, or is continued northwards across the Arctic Ocean so as to be connected with Wrangel Land off the north-east coast of Siberia. The latter hypothesis was defended by Petermann, but it is asserted that the observations on the tides north of Smith Sound made by Captain Hall in the *Polaris* (1872–74) and by Captain Nares in the *Alert* and *Discovery* (1875–76) have demonstrated the insular character of this piece of land. The southern point of Greenland reaches far below the limit of the Arctic Regions, being found in lat. 60° N., but our most convenient course is to treat of the whole territory under this heading. The coasts of Greenland are nearly everywhere flat; but the interior is lofty, and has the appearance of one vast glacier, with occasional spots in the steeper parts covered with heaths and mosses. Vegetation is almost confined to the low shores and valleys, where there are grassy meadows along with some stunted shrubs and trees. West of Greenland and north of America there lies a large group of islands having pretty much the same character, being mostly covered with ice and snow, and presenting but few spots where a scanty vegetation is found. The farthest north of these islands yet known is Grant Land, the northernmost point of which seems to have been discovered by the expedition under Captain Nares in lat. 83° 5′ N. No land was descried by a sledging party which was sent due north by the commander of this expedition, and which reached lat. 83° 20′ 26″ N. Passing from America to Asia, the first land we come to, north of the continent, is Wrangel Land, of which only the southern part has been seen. We next come to the group of small islands known as New Siberia, separated from the coast by a shallow sea; and then to the wild and desolate islands of Novaya Zemlya, with the smaller island of Waigatz to the south. North of these lies Franz Josef Land, a glacier-clad archipelago discovered in August, 1873, by the Austrian expedition under Weyprecht

and Payer, through the drifting towards it of the ice-floe on which, as above mentioned, their ship lay helpless from 1872 to 1874. Due north of Norway is the Spitzbergen group, consisting of three large and numerous small islands, the larger presenting to view immense glaciers and mountain chains bristling with granite peaks, many of which exceed 4000 feet in height. To those peaks it owes its name, originally Dutch (Spitsberghen), and signifying "peaked mountains." About midway between Spitzbergen and Norway lies Bear Island, discovered by the Dutch navigator Barents in 1596, and about midway between the same group and Iceland is another small island named Jan Mayen, after

Peak of Jan Mayen Island.

another Dutch navigator, who discovered it in 1611. The latter island is remarkable as being volcanic, possessing two volcanoes, one 6860, and the other 1590 feet high.

Valuable minerals, fossils, &c., have been found within the Arctic Regions. In the archipelago north of the American continent excellent coal frequently occurs, especially on the islands of the north-west. Cryolite is obtained in Greenland. Among fossils the remains of large saurians found in the lias which extends widely over the northern archipelago, and ammonites collected in abundance prove that in lat. 73° N. there was once a tropical temperature. The New Siberian islands are little more than accumulations of fossil remains carried down by the river Lena, and are annually visited for the purpose of digging fossil ivory, the remains of the mammoth. The only arborescent plants in Greenland are dwarf birches, willows, and berberries; the only fragrant plants, thyme and angelica. In North America the line limiting the forest region is

outside of the polar circle, but in Siberia, where the summer heat is greater, woods flourish even to the north of that boundary. In the Scandinavian Peninsula the red pine reaches lat. 69°, the Scotch fir lat. 70°, the birch 71°. From twenty to thirty species of phanerogamous plants were found between lat. 82° and 83° N. by the English expedition of 1875–76 under Captain (now Sir George) Nares. In general it may be remarked that what has been stated, in the section on the Ocean, as true of the oceanic flora and fauna in high latitudes, is true also of vegetable and animal life in the same latitudes on land, that though individuals are numerous species are few. The abundance of animal life within the Arctic Regions is proved by the immense number of skins of fur-bearing animals, eider-ducks, seals, walruses, &c., annually supplied from those regions to commerce. The English expedition above referred to found the usual arctic quadrupeds and birds as far north as the land extended; but no cetaceans were found north of Payer Harbour, about lat. 78° 40′ N.

CLIMATE.—The most noticeable fact regarding the climate of the Arctic Regions is that the highest annual mean temperatures are found in the north of Norway and the neighbouring parts. Thus the annual isothermal of 32° Fahr. passes round the north of Norway about 5° north of the polar circle, while in the Behring Sea on the opposite side of the earth it passes at least 10° below that circle, and the annual isothermal of 23° Fahr. passes through the south of Spitzbergen in about lat. 77° on the European side, while it descends to about lat. 63° on the American and Eastern Asiatic side. The temperature of Greenland is intermediate between that of Norway and the parts of Asia and America within the same parallels. This difference between the European and Eastern Asiatic sides of the Arctic Regions is without doubt attributable mainly to the free admission of the warm surface currents from the south-west through the wide opening between Greenland and Norway and to the warm south-westerly winds accompanying these currents. All along the west coast of Greenland from Cape Farewell to Upernivik a sudden rise of temperature, amounting sometimes to about 40° Fahr., is frequently observed. This has been attributed to a similar cause to that which brings about a similar sudden increase of temperature in the valleys north of the Alps in Switzerland, namely the blowing of a wind called the *föhn*, an account of which will be given under Switzerland, and of which all that we need say here is that it blows as a moist and cool wind up one side of a mountain range and as a dry and warm one down the opposite side. The south-east wind, which blows from the Atlantic across the mountains of Greenland, has been called the **Greenland föhn.**

The most intense arctic cold that has ever been registered was endured by the English expedition under Captain Nares. During that expedition a temperature of 59° below the zero of Fahrenheit was registered for thirteen consecutive days, and there was once registered a temperature of 74° below zero, or 106 degrees of frost. The lowest temperature experienced by the expedition under Weyprecht and Payer in the seas between Novaya Zemlya and Franz Josef Land between 1872 and 1874 was 51° below zero Fahr.; and that registered by

Nordenskiöld at the wintering station of the *Vega* on the north-east coast of Siberia in six consecutive months in 1878–79 was as follows:—Oct. 1878, – 5½° Fahr.; Nov. – 17°; Dec. – 35°; Jan. 1879, – 50°; Feb. – 47°; March, – 40°. The extreme variability of the winds of polar regions and their great diversity within comparatively small areas have often been remarked on by explorers. Storm and calm succeed one another without warning. Violent winds blow at one place, while not far off the strength of the wind is considerably less. Ships at different points of the compass may be seen exposed to all possible winds at the same time. This changeableness is due to the great variety of temperature and atmospheric moisture caused by the alternation of ice-masses and open sea; and where the sea is entirely covered with ice without any considerable gap the weather is more constant.

ARCTIC DAY AND NIGHT.—Everywhere within the arctic (as well as the antarctic) circle there is a longer or shorter period of uninterrupted day at one time of the year, and a corresponding period of absence of sunlight at another time of the year, and the length of these periods increases as we approach the poles. The two periods, of sunlight and absence of sunlight, are not exactly the same in length, two causes combining in the Arctic Regions to make a difference in favour of sunlight. One of these is the refraction of the rays of the sun by the atmosphere, the effect of which is to make the sun appear as if it were still above the horizon when its real position is below it; and the other, the slower rate at which the earth, in consequence of its greater distance from the sun, advances in its orbit during the northern summer than during the northern winter. In lat. 70° N., which is about that of Tromsö in Norway, the astronomical periods of sunlight and darkness are respectively 65 and 60 days, and in lat. 80°, which is that of the southern part of Franz Josef Land, they are 134 and 127 days; and the former period in each case is increased, and the latter consequently diminished by refraction by from four to five weeks.

Even after the disappearance of the sun and the termination of the long twilight that follows, the inhabitants of the polar regions are not indebted to the moon and stars alone for light. During their long winter their night is often illumined by the splendours of the **aurora borealis**, a phenomenon with which we are not unacquainted in our own latitudes, though with us it is seen too faintly and too rarely to give us any idea of the important part it plays and the magnificent appearance it presents within the polar circles. When seen in temperate climates it is usually only a faint band of greenish yellow light appearing in the form of an arc of a circle in the northern sky, perhaps with occasional sheaves of brighter light darting upwards from it towards the zenith, now at one part and now at another, and shifting their place with great rapidity from side to side, sometimes towards the east and sometimes towards the west, over the whole band of light, which is sometimes steady and sometimes in a state of constant undulation. In the polar regions, on the other hand, the aurora is not only a frequent occurrence, nearly every night being illumined by one of greater or less brilliancy, but manifests itself in an endless variety of ways, all of them much more splendid than its appear-

ances in the temperate zones. According to Weyprecht, the arctic navigator already mentioned, who has given an excellent account of this phenomenon, the course of an aurora is sometimes regular and little diversified, and then it is an augury of continued calm and fine weather, at other times varied, irregular, and in the highest degree brilliant, and then it is a portent of storm. An aurora of the former kind begins not, as with us, in the north, but in the south of the heavens, appearing there in the form of a band of light low in the horizon similar to that which occurs in more temperate regions. Gradually this band of light rises higher and higher towards the north, and as it does so a second band appears where the first originated, then a third and a fourth, until as many as seven may be seen hanging like curtains of light in the sky, one within the other, each constantly disturbed by flutterings and undulations, and all either advancing towards the north, where they gradually grow fainter and finally disappear, or retiring again towards the south and disappearing there. The prevailing character of the aurora in its more diversified forms is a play of light round that spot in the heavens near the zenith to which the south pole of the freely suspended magnetic needle points. Sheaves or rays of white or yellow light bordered or otherwise variegated with red and green are directed towards this centre, sometimes ranked closely together in the form of a circular arc, sometimes darting up from different quarters of the heavens; sometimes remaining comparatively steady in form, sometimes waving and fluttering, and now approaching now receding from the centre towards which they point, while their colours are nearly always varying at different parts in the intensity with which they gleam. While these appearances are visible in distinct portions of the sky, almost the entire face of the heavens may be seen covered with a beautiful and perfectly transparent veil of light terminating below in a broad band of brilliant white bordered with the most delicate red and green, which keeps slowly but uninterruptedly rising and falling in varied undulations. At the same time a violet-coloured vapour appears to be suffused over several spots in the heavens. When the aurora is at its height, which, according to Weyprecht, is about 8 o'clock in the evening, it has the appearance of a sea of

The Aurora Borealis as seen in the Arctic Regions.

flame spread out all round the magnetic pole, constantly changing over its whole extent, or in different parts, from white to red and from red to green, so that it is impossible to say at any instant what its colour actually is; constantly streaked with rays of light, which keep darting from or to all points of the compass with such astonishing rapidity that one can hardly tell whether they are ascending or descending; while at the same time there crosses the magnetic pole from one side of the horizon to the other a broad fiery bow in which the waves of light chase each other with fury from one side to the other. It is said by some that such displays are attended by loud noises resembling the hissing and crackling of fireworks, but Weyprecht states that while watching an aurora of this kind he was involuntarily impelled to listen intently for any sound that might be heard, but that he could hear nothing: the whole outburst took place amid the most perfect stillness. The degree of illumination afforded during the greatest brightness of an aurora is considerable, enough, says Weyprecht, to enable one to read the smallest print. The ice-fragments cast shadows; thin peaks and pinnacles appear in distinct outline; and the white surface of the ice-fields in the remote distance stands clearly out against the dark horizon.

The duration of this phenomenon is very variable; generally it is in proportion to its intensity and extent. Sometimes it continues only for a few minutes. Frequently it is observed in a greater or less degree during most of the night; and in some instances it has lasted several days and even a week without interruption.

The cause of the phenomenon has not yet been satisfactorily explained. There can be no doubt that its occurrence is in some way connected with terrestrial magnetism. The convergence of the most brilliant displays round the magnetic pole is itself an indication of that, and an equally clear indication of the same thing is to be found in the fact that the very irregular temporary variations of the magnetic needle, known as magnetic storms, "are," to use Airy's words, "invariably connected with the exhibition of aurora borealis and with spontaneous galvanic currents in the ordinary telegraph wires; and this connection is found to be so certain that upon remarking the display of one of the three classes of phenomena we can at once assert that the other two are observable (the aurora borealis sometimes not visible here, but certainly visible in a more northern latitude)." This being the case, it is only what might be expected, to find that the sun-spots, which are known to be closely connected in some way with terrestrial magnetism, are also connected with the appearances of the aurora. These appearances vary in frequency in different years, and the years in which they are most frequent are precisely those in which the sun-spots reach their greatest extent, namely, about every eleventh year. In the northern hemisphere the zone within which the occurrences of the aurora are most frequent is about 17 degrees from the magnetic pole.

PEOPLE.—All except one or two of the Arctic Islands are uninhabited. The small island of Waigatz between Novaya Zemlya and the mainland contains a few Samoyedes, and some Esquimaux are to be found on one or two of the islands of North America, but elsewhere the permanent inhabitants are confined

to the continents and to Greenland. The principal tribes found within the limits of the Arctic regions are the Esquimaux or Eskimo in Greenland, on the north coast of North America, and over a small area on the west of Behring's Strait, the Chukchis, Yakuts, and Tunguzes in Siberia, the Samoyedes in Siberia and Russia, and the Lapps in Russia, Norway, and Sweden. Of these all except the first mentioned will be most conveniently noticed in connection with the countries which they inhabit; but as the Esquimaux are the only aboriginal inhabitants of the Arctic regions which we shall not have occasion to touch upon again,

Esquimaux Snow-village in King William Land.

our account of them will best be given here. The Esquimaux are a very widely scattered race. Their total number is estimated at about 20,000, and they are spread over coasts having an extent of about 5000 miles. For all that, they present a very remarkable degree of resemblance to each other in appearance, in language, and in customs, while they differ considerably from the tribes living next them. Their name is not a native one, but apparently an American Indian name signifying "eaters of raw flesh." The name by which they are known to themselves is Inuit, "the people." The Esquimaux are considered by many ethnologists as of Mongolian origin, while others think that they are allied to the Red Indians. They consist of three principal stocks—the Kalalits, better known as Greenlanders, and inhabiting Greenland, especially on the west coast, from the southernmost point to about lat. 78° N.; the Labrador Esquimaux, inhabiting the Labrador coast from about 50° N.; and the Western Esquimaux, found along Hudson's Bay down to about 55° N., the west side of Baffin's Bay, the polar shores of America generally down to about lat. 60° N. on the west side,

and the opposite coast of Siberia. The most northerly point at which traces of Esquimaux were found by the last English Arctic expedition was in lat. 81° 40′ N. The northern limit previously mentioned is the latitude of their most northerly permanent settlement. All the Esquimaux settlements are on the coast, and it is rare to meet with members of this race even on hunting expeditions more than twenty miles inland.

The leading physical characteristics of the Esquimaux are a small stature, broad round face, high cheek-bones, flattened nose, eyes often oblique, and a yellow or brownish skin, which last, however, always appears in adults, in consequence of the gradual accumulation of grease and dirt, much darker in hue than it really is. The smallness of their stature has often been exaggerated. Their actual height varies from about five feet four to five feet ten inches, or even in rare instances six feet, while it has been asserted that the height of the Greenlanders was less than five feet. The dress of the men consists chiefly of a cloak of seal-skins which reaches to the knees, and trousers of the same material; and that of the women closely resembles it, the chief point of difference being that the women's cloak has a hood, called an **amowt**, large enough to carry a child in, while in the men's cloak the hood is only of such a size that it can be drawn over the head. In summer they live in tents covered with skins of reindeer and fallow-deer; in winter they may be said to burrow beneath the snow, their houses, which are built of stone, turf, earth, and bones, being half underground. Temporary winter settlements are sometimes made by the Esquimaux by erecting **igloos** or hemispherical houses of snow with ice for the windows. The cut on the previous page represents a village of this sort, as observed by Sir John Ross in King William Land. When the winter is past, such houses become uninhabitable on account of the dripping caused by the snow melting. For food the Esquimaux depend almost entirely on fishing, especially seal-fishing. Owing to the rigour of the climate they eat flesh and fish raw, and consume much fat and oil, which are considered delicacies. A few roots and berries are eaten, but beyond these no other vegetables; but at the Danish settlements on Greenland a few imported articles of food are used. They are enormous eaters, each individual in Greenland being said to consume on an average 2½ lbs. of flesh and 1 lb. of fish, besides vegetables and imported food, every day. The most valuable possessions of an Esquimaux are his boat and his sledge. His boat or canoe, called a **kayak**, is long and narrow, pointed at both ends, and affording accommodation only for one person, who sits in a hole in the centre, wearing a waterproof dress, the extremities of which he fastens tightly round the mouth of the hole, so that if the canoe should capsize not a drop of water would enter. The canoe consists of a frame of wood or whalebone over which is stretched a hairless sealskin covering. The means of propulsion is a double paddle, which is dipped into the water with a backward pressure first on the one side and then at the other. At the Danish stations a broad flat-bottomed boat of clumsier construction, called the women's-boat from the fact of its being rowed solely by women, is used to land the goods brought by the ships that visit the settlements. Their

sledges, made of two wooden or bone runners connected by cross bars tied with hide thongs, are drawn by dogs, from four to eight of which are harnessed abreast. Their weapons are bows and arrows, spears, and harpoons, the last of which are sometimes made so that the point becomes detached after it has struck the animal aimed at. The affinities of their language are not known. The most striking feature of the language is the formation of long compound words equivalent to whole sentences in other languages. In intellect they are by no means deficient, and they show considerable aptitude for instruction as well as a good deal of inventiveness. In manners they are kind and hospitable; they love freedom, and manifest a deep attachment to their homes

Julianshaab, a Danish Station near the southern extremity of Greenland.

and native land. They are said to be scrupulously honest in their dealings with one another, but totally regardless of the rights of strangers. The Esquimaux of Greenland and Labrador are at least nominally converted to Christianity, but there are certain religious ideas of native origin which are said to be common to the whole race. They believe in a vast number of supernatural powers or **inuas**, each of which is limited to a certain domain or function. One inua presides over a mountain or lake, another is the being who confers strength or skill, or provides abundance of food. Certain men are gifted with the power of serving as mediums of communication between the inuas and mankind. After death a man may have one of two lots. He may pass to the under world, on which the earth and sea are supported by pillars, and there he will afterwards live in plenty; or he may pass to the upper world, whose floor is the sky, but there he will be cold and hungry, and spend his time among the ball-players, who by playing at ball with a walrus head produce the aurora borealis. The award of an after-life below or above is in no way dependent on a man's life on earth, for though it is said that traces of a belief in future rewards and punishments are to be found among the Esquimaux, they are very faint and indefinite.

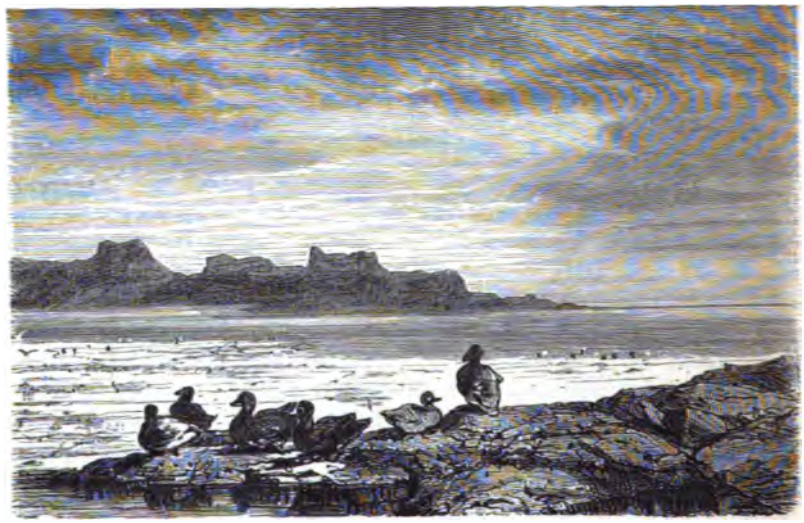
The missionary who introduced Christianity into Greenland was Hans Egede, a Norwegian by birth, who founded a colony here, under the auspices of the Danish government, in 1721, since which date the whole of Greenland has been claimed by Denmark. Egede was followed by Moravian missionaries, and of the 11 mission stations now in Greenland, seven are Danish and four Moravian. A native pastor was ordained for the first time in 1874. In 1870 the settled inhabitants of Greenland numbered 9825, of whom 210 were Europeans.

VISITORS.—The visitors to the Arctic Regions are of two classes, **fishers** or **hunters**, and **explorers**. The former are by far the most regular, returning every year during the season in which the weather is favourable, while the latter are only occasional visitors, though of late years their visits have been very frequent. The principal objects of pursuit are the whale, the seal, and the walrus; but the fishermen of the northern seas also attack the Arctic shark (*Squalus* or *Scymnus glacialis*) for the sake of the oil yielded by its liver; the rorqual for its blubber; the beluga, or white whale, for its oil, skin, and swimming-bladder (from which isinglass is prepared); the reindeer and the polar bear; capture ducks and geese, and preserve them by salting; collect birds' eggs and eider down; and, in general, lay hold of everything useful that comes in their way. The whale-fishing has been carried on with as much vigour and success from the United States of America as from any other country, and New Bedford, Massachusetts, is still the principal whaling port in the world. Next in importance is Dundee. The locality of the northern fishery has repeatedly changed since the first expeditions. About 1820 the Greenland seas were almost entirely abandoned by the whalers, who resorted to Baffin's Bay and Davis Strait; but since 1837 the Greenland seas are again the chief resort. The fishing in Baffin's Bay and Lancaster Sound is very dangerous on account of the great number of icebergs. The seal-fisheries are prosecuted chiefly by British and Danish fleets. The Spitzbergen fleet meets at the end of February in Bressa Sound, off Lerwick; in the beginning of March it sails for the north, and the seals are usually found about the first week in April. The seal-fishery is, however, becoming more and more precarious year by year in consequence of the diminution in the number of the seals; and the best authorities seem to be universally agreed that the seal-fisheries must wholly fail in a few years, unless a close time can be established by international agreement. The Norwegian sailors are those who show the most eagerness in the pursuit of the walrus. A few years ago whole fleets used to set sail annually from Tromsö, Vardö, Hammerfest, and the fiords that run far up into Finmark; but now, owing to a succession of bad years, and especially to the disasters of 1872, when many ships were destroyed, or had to be deserted in the ice, and many lives were lost in the neighbourhood of Novaya Zemlya and Spitzbergen, the numbers still pursuing this fishery from these ports are greatly reduced. The Norwegian crews that sail the Arctic seas are described as being in general sluggish, inactive, and listless in the last degree, until a walrus is sighted, when the change that comes over them is instantaneous and surprising. Every one then shows the utmost activity and eagerness; and all the preparations are made for its

slaughter with the greatest possible expedition, but without hurry or confusion. If the walrus happens to be lying sleeping on the ice, the boat is rowed noiselessly up to the edge of the floe, and the harpooner, leaping on the ice, advances towards his prize, which is quite helpless out of the water, and quietly transfixes it with his long lance. If there happen to be many of them together, and their assailants manage to cut off the retreat of those nearest the water, then the whole herd is secured. Those first slain form a rampart which the remainder cannot surmount, and behind which they succumb one after another to the lance of the hunter. But the walrus hunt has a quite different aspect when the scene is in the water. If the boat is launched in sight of a herd of walruses the animals swim up towards the strange object and curiously examine it. The harpooner stands ready in the bow of the boat with a harpoon in his right hand and five others lying clear at his left, each attached to the boat, like the one which he holds in his hand, by a line ten or twelve yards long. When a walrus comes near enough for him to strike, he throws his harpoon at it, and taking up another stands again on the watch. The safety of the boat now depends mainly on the skill of the steersman, whose movements must prevent the capsizing of the boat through the diving of the stricken walrus; and still more is his skill necessary when a second and a third, or even six, as may sometimes happen, are attached to the boat in the same way. When one is struck others fall victims in pretty quick succession, for the companions of the first then gather closer round the boat, lashing the water with fury, diving repeatedly and suddenly rising again on one side or the other, and raising their heads high above the water in order to destroy the boat, if possible, by a single blow with their long downward-pointing tusks. Sometimes all on board except the steersman have to let go their oars, and catching up the axes that lie ready at hand engage in close contest with the whole herd. At last they are beaten off, and the harpooner then drags the harpooned animals, now exhausted by loss of blood, one after another up to the boat, and transfixes them with his lance. Such encounters are rarer than they used to be, in consequence of the great reduction in the numbers of the walruses. But they are always welcomed by the Norwegian walrus-hunter, who thinks nothing of danger when he sees the chance of numerous prizes. Even yet a successful hunter may obtain from 150 to 200 walruses in a single season. The hunting of the polar bear is regarded by the walrus-hunter as mere child's play, for if he finds the bear on the ice, he has merely to shoot and the animal falls, and if he meets him in the water, he amuses himself by driving the helpless beast before him to the ship, using the harpoon as a goad to direct him and spur him on.

We have still to speak of the other class of visitors to the Arctic regions, the **explorers.** There are three main objects that have induced the visits of explorers to these regions; a commercial one, to find new trade routes; a geographical one, to add to our knowledge of the surface of the earth, and if possible to reach the north pole; and a more purely scientific one, to make observations on the meteorology, the magnetic conditions, and other phenomena of the Arctic regions. From the sixteenth century onwards numerous attempts

were made to discover a trade-route to India and the East by the north of America (the north-west passage), and another by the north of Europe and Asia (the north-east passage), and in the course of these attempts nearly all the knowledge that we have of the Arctic regions has been gained. All that we can do here is to mention a few of the more celebrated of these explorers, and even this is almost superfluous, as most of them have their names attached to their discoveries. In the sixteenth century the chief explorers in the north-west were Sebastian Cabot, Frobisher, and Davis; in the seventeenth, Hylot and Baffin. After 1631 explorations in this quarter were almost entirely abandoned till the present century, when they were actively resumed, a long list of new



Polar Sea, Kennedy Channel.—After Dr. Kane.

names being added to those of former explorers. Among these are Sir John Ross and Sir Edward Parry, Sir James Ross, the ill-fated Sir John Franklin, Richardson, Rae, M'Clure, M'Clintock, Dr. Kane. To M'Clure belongs the honour of discovering the long-sought-for passage, which is from Baffin's Bay through Lancaster Sound, Barrow Strait, Melville Sound, and Prince of Wales Strait; but the discovery, made in 1850, is of no practical utility on account of the obstruction of ice. Among the explorers in the north-east were Willoughby, Pet, Jackman, and Barents in the sixteenth century; Deshnef, who, in the middle of the seventeenth century, discovered Behring's Strait, which, however, remained little known till it was re-discovered in 1728 by the navigator whose name it bears; Loshkin, another eighteenth century explorer, the first to circumnavigate Novaya Zemlya; Hedenström, Anjou, Wrangel, &c. The first who actually accomplished the north-east passage was Prof. Nordenskiöld, of Stockholm, who in 1878 sailed eastward in the steamer *Vega* along the whole of the north coast of Europe and Asia to about 173° w., was beset and detained there by

ice from the end of September, 1878, to the beginning of April, 1879, and soon after the latter date sailed through Behring's Strait. As the result of this voyage Prof. Nordenskiöld holds it to be established that a regular communication by sea for trade purposes may be maintained between Europe and the Lena, and between the Lena and Behring's Strait, though it cannot in the meantime be expected that the double voyage from either starting-point can be completed in a single summer.

Besides this voyage of Nordenskiöld's, the most important of Arctic expeditions in recent years are two German ones under Capt. Koldewey in 1868 and 1869; the Austrian one already mentioned more than once under Weyprecht and Payer in 1872–74; the English expedition under Capt. (now Sir George) Nares, in 1875–76, in the course of which the highest latitude yet reached (83 20′ 26″ N.) was attained; several voyages of Prof. Nordenskiöld previous to the one just spoken of; several Dutch expeditions in the *Willem Barents;* and an English expedition under Mr. Leigh Smith, who in 1880 explored the southern coast of Franz Josef Land in a steamer named the *Eira* specially built for ice navigation. In July, 1879, an American steamer named the *Jeannette*, equipped by Mr. Bennett, proprietor of the *New York Herald*, sailed from San Francisco to make explorations in the north of Behring's Strait, but since September in that year has not been heard of. Several expeditions have since been sent out in search of it.

In connection with scientific research in the polar regions it should be mentioned that a beginning has been made with the establishment of observatories both in the Arctic and Antarctic regions for the taking of a continuous series of simultaneous observations of meteorological and magnetic phenomena, including the appearances of the aurora borealis, a plan strongly advocated by the late Lieut. Weyprecht up to the time of his death in the spring of 1881. One such station has already been established by Russia at the mouth of the Lena, and another in Eastern Siberia; an Austrian nobleman has undertaken the equipment of a station in Novaya Zemlya, and a Swedish gentleman of one in Spitzbergen; the Danish government has provided the necessary means for the establishment of one at Upernivik in West Greenland; and the United States government has determined to establish one at Point Barrow on the north coast of Alaska, and another in Lady Franklin Bay, an arm of the sea running off Robeson Channel in about 81° 40′ N.

ANTARCTIC REGIONS.

The Antarctic or southern polar regions are much colder than the Arctic. The visitors to this desolate portion of the earth's surface have rarely been able to effect a landing on account of the vast barriers of ice with which the shores are everywhere bound, and which have a breadth of from 5 to 20 miles. The mean ice-limit is at least ten degrees lower than round the north pole, and **frost-smoke**, a thick dark fog arising when the sea is exposed to a temperature much below the freezing-point of fresh water, is a much more frequent and

more general phenomenon in the Antarctic than in the Arctic seas. Among the navigators who have penetrated to a greater or less distance into this region, the most celebrated are Bellinghausen, Biscoe, Balleny, Dumont d'Urville, Wilkes, and Sir James Ross, and various discoveries of land, chiefly, as the map shows, on the south polar circle, are due to their explorations. The discovery of Victoria Land, the most southerly tract known in the Antarctic regions, is due to Sir James Ross, who sailed from England for these seas in 1839. Passing the Antarctic Circle about lon. 178° E. he saw land in 172° 36′ E. lon. and 70° 41′ S. lat. He found here a continuous coast trending south, and with mountain peaks 9000 to 12,000 feet high. In 77° 32′ S. lat., 167° E. lon. he discovered an active volcano 12,400 feet above the level of the sea, which he named Mount Erebus; and further east an extinct volcano, which he called Mount Terror. At 78° 4′ S. he was arrested by a perpendicular barrier of ice 150 feet in height, along which he sailed east to lon. 168° 37′ W. In the following year he was stopped by the barrier in lat. 78° 11′ S., lon. 161° 27′ W., the southernmost point he reached. The chief purpose of this expedition was magnetic investigation, and in the course of it the position of the south magnetic pole was discovered by observations taken at different points. The only mammals found in the Antarctic regions are seals and cetaceans. Innumerable penguins frequent the islands, where they form great deposits of guano. No vegetation has been found further south than Cockburn Island in the South Shetland group, in lat. 64° 12′ S. On it nineteen species, all belonging to the mosses, algæ, and lichens, and some very minute, have been found.

Beaufort Island and Mount Erebus.

EUROPE.

Though called a continent, Europe might be more justly entitled a great peninsula, which is again characteristically divided into several smaller peninsulas. It is the smallest of the principal divisions of the earth, Australia excepted, but it contains a larger population than any of the others except Asia, and is remarkable for its decided superiority in arms and industry, and as the quarter wherein civilization, almost constantly progressive, has hitherto attained its most perfect development.

BOUNDARIES AND CONFIGURATION.—Europe is bounded on every side except the east by the sea, and the eastern boundary is the only one that calls for any remark. Formerly it was not uncommon to trace the boundary line from the Sea of Azof up the River Don, to the point where this river approaches nearest to the Volga; thence up the latter river and its eastern tributary, the Kama, to the Ural Mountains. At the present day it is common to regard the Caucasus, where this mountain chain extends from the Black Sea to the Caspian in a direction from west-north-west to east-south-east, as the natural boundary on the south; while the Caspian Sea, the Ural River, and the Ural Mountains are looked upon as the natural boundaries between Europe and Asia on the east. The Ural Mountains are adopted as a boundary merely for the apparent convenience of referring the demarcation of the two continents to a chain of mountains, but the region of the Ural presents, to a great extent, only a moderate elevation, attained by imperceptible degrees, and offering to the eye no landmark whatever; and if we look for a political boundary we find that the line which separates Russia proper from Siberia lies not in the Ural but much further east, at the river Tobol.

DIMENSIONS, &c.—The most northerly point of Europe, on the mainland, is Cape Nordkyn in Lapland, in lat. 71° 6′; North Cape, on the island of Magerōe, lies about four miles further north. The most southerly points of the continent are Punta da Tarifa, lat. 36° N. in the Strait of Gibraltar, and Cape Matapan, lat. 36° 17′, which terminates the Morea. The island of Candia reaches a little south of 35°. The most westerly point is Cape Roca in Portugal, in lon. 9° 28′ W.; and the most easterly south of the Arctic Circle is in the neighbourhood of Ekaterinburg in the Ural Mountains, in lon. 60° 36′ E. Thus Europe may be said to extend, in round numbers, through 35 degrees of latitude, and 70 of longitude. From Cape Matapan to North Cape is a direct distance of 2400 miles; from Cape St. Vincent to Ekaterinburg, north-east by east, 3400 miles. But the area of the continent must not be deduced from these large numbers, which are, indeed, only the extreme dimensions of a very irregular and much broken figure. Owing to this incompactness of figure and

separation into peninsulas, the area of the European continent, notwithstanding its considerable length and breadth, does not much exceed 3,800,000 square miles, Caucasus being taken as the south-eastern limit towards Asia. Towards the east it grows more compact, or, in other words, it loses in Russia its characteristic peninsular features; but west of Cracow and the Russian territory there is hardly a spot in the European continent which is 300 miles distant from the sea.

SEAS.—The Atlantic Ocean takes different names in the various portions of it which wash the western shores of Europe: thus, between the north coast of Spain and the west coast of France lies the Bay of Biscay, where the ocean swell, rolling into the region of variable and restless winds, makes a perpetually troubled sea. Further north, between the coasts of France and those of the British Islands, the English or British Channel is likewise noted for uncertain and tempestuous weather and for its difficult navigation. The main portion of the sea between Great Britain and Ireland is named the Irish Sea; it communicates with the Atlantic on the south by St. George's Channel, on the north by the North Channel. The sea between Great Britain and the Low Countries Germany, Denmark, and Norway is named the German Ocean or North Sea. There are numerous islands on the continental shores of this sea, and about the centre of it lies the great sandbank known as the Dogger Bank. The average depth of the sea is about 31 fathoms. From this a great gulf or inland sea branches off to the east, winding round Denmark and Sweden and taking various names, the main portion of it, lying between Sweden, Russia, and Germany, being usually known as the Baltic. There is no appreciable tide in the Baltic, and as this sea receives many rivers, while it loses little by evaporation, its waters are much less salt than those of the ocean. Ice on the coasts obstructs the navigation for three or four months in the year. The whole length of this sea from the Skaw at the north of Denmark to the head of the Gulf of Bothnia cannot be less than 1200 miles. On the north of Russia the White Sea forms a deep inlet from the Arctic Ocean nearly 400 miles in length. Its shores also are annually frozen up for some months. The Strait of Gibraltar, in one place only 19 miles wide, forms the communication between the Atlantic Ocean and the Mediterranean Sea, which latter has an extension from west to east of 2500 miles, with a general width perhaps of 500 miles, but owing to its sinuous shores and deep indentations it stretches through 15 degrees of latitude. Its chief gulfs are the Adriatic Sea, above 500 miles in length, between Italy and Illyria; and the Archipelago, which lies between the Grecian Peninsula and Asia Minor. The Black Sea, which is connected with the Archipelago, extends from west to east nearly 700 miles, while its width is from 200 to 300 miles; and here again, on the north shores of this sea, even in lat. 45° N., we find the rivers and harbours frozen, and navigation prevented during five months of the year. The Mediterranean abounds with fish and furnishes the finest coral and excellent sponges. The European shores of the Mediterranean and its islands, both in scenery and climate, are among the most delightful portions of this continent. The Black Sea receives some of the largest rivers

of Europe, including the Danube, Dnieper, Dniester, and Don (through the Sea of Azof), and its waters consequently are very brackish.

MOUNTAINS.—The mountains of Europe form several distinct groups or systems, of very different geological dates, and capable of being considered as a whole only from that point of view which discloses their combined influence on the climate, physical character, and capabilities of the continent around them. The Scandinavian mountains, to which the great northern peninsula owes its form, and in some respects its peculiar climate, extend through 13 degrees of latitude (58°–71°), or above 900 miles, from the Polar Sea to the south point of Norway. The highest part of the chain is from the middle southwards, where there are two summits above 8000 feet; but there are many points in the northern part which have an elevation exceeding 6000 feet. The Scandinavian mountains nowhere form a narrow crest at their summits, but, on the contrary, they expand into plains, fells, fields, or fjelds, often 30 or 40 miles wide. Towards the east the mountain mass declines gradually; while on the west it falls abruptly to the sea, which forms along the coast of Norway numerous deep inlets or fiords, many of them remarkable for the magnificence of their scenery.

In the British Islands, as in the Scandinavian Peninsula, the mountains rise chiefly on the west; and, indeed, the older rocks, in both cases, seem to lie in parallel courses, as if they formed parts of one system. In the form of Scotland, the direction of Glenmore, of the estuaries of the Clyde and Severn, and in the deep inlets on the south-western coast of Ireland, may be seen strong traces of parallelism with the Scandinavian range, there being no peaks which attain the height of 4500 feet.

The mountains of France, in so far as they do not belong to the system of the Alps, occupy chiefly the southern and eastern departments; the northern and western parts of the country belong to the great plain of Northern Europe. Near the middle of the country is the large table-land studded with volcanic peaks which forms the mountains of Auvergne, and east and south from this table-land stretch the Cevennes from the banks of the Rhone to near the Pyrenees. The general elevation of both ranges is about 3500 feet, but both have peaks considerably higher. The Jura Mountains, extending about 200 miles north-east and south-west, form a barrier between France and Switzerland. The parallel ridges, chiefly limestone, of the Jura, present steep descents towards the south-east, gentle slopes in the opposite direction, and are separated by longitudinal valleys of great length, with few transverse breaks. The average height of the Jura is 3700 feet; but its highest point, the Molesson, reaches the elevation of 6560 feet. North of the Jura, the banks of the Rhine continue mountainous for a long way. On the west of that river, between it and the Moselle, rise the Vosges, which form a chain 120 miles in length, north to south, with a mean height not exceeding 2650 feet. The south-western portion of France, between the Rhone and the Swiss and Italian frontiers, is occupied by ramifications of the Alps, and on the border of Switzerland, but within French territory, rises Mont Blanc, the culminating summit of the Alpine system.

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On the south, France is divided from Spain by the Pyrenees, a narrow chain,

250 miles long and hardly 50 miles in breadth, extending from the shores of the Mediterranean Sea to those of the Atlantic; though some consider the mountains of Asturias and Galicia, which stretch above 300 miles west, as a continuation of the Pyrenees. The central line or axis of this chain is composed of granite, on which lies limestone; the latter rock, however, not being deposited in a line strictly parallel to the granitic axis. The highest point in the chain, La Maladetta, or Mont Mauduit, called also, in the provincial language, the Pic de Netou, has an elevation of 11,165 feet. The Pyrenees are separated on the south by the valley of the Ebro, which flows into the Mediterranean, from the elevated plain of the Spanish Peninsula. This great plain, or table-land, the elevation of which varies from 2200 feet to 2800 feet, has a superficial extent of not less than 90,000 square miles. It descends gradually on the west towards Portugal; but on the east, towards the provinces of Catalonia and Valencia, it presents an abrupt steep or line of cliffs, with the characters of an ancient sea margin. It is bounded on the north by the Asturian chain, the highest point of which, the Peñas de Europa, probably reaches an elevation of 8500 feet; and on the south by the Sierra Morena. Between these limits it is intersected by two other important ranges of mountains running nearly east and west, but with more or less of an inclination to the north and south. Of these two ranges the northern is the Guadarrama with its continuations, separating the valleys of the Douro and the Tagus, and attaining in one of its peaks, the Peñalara, a height of 8200 feet; and the southern, the Sierra Guadeloupe, between the Tagus and the Guadiana. The low country of the Iberian Peninsula is of comparatively small extent, embracing only the middle part of Portugal, the plains of Aragon and Catalonia, the maritime districts of Valencia and Andalusia, and the valley of the Guadalquivir in Andalusia, which is confined on the south by the lofty Sierra Nevada, a few peaks of which rise higher even than the Pyrenees.

The Alps, the highest mountains in Europe (unless Mount Elbruz and part of the Caucasus may be claimed as European), extend uninterruptedly from the mouth of the Rhone to the plains of Hungary, through 4 degrees of latitude (44°–48° N.), and about 12 degrees of longitude (5°–16° 30′ E.). On the south they are bounded by the valley of the Po; on the west by that of the Rhone; and on the north by the valley of the Danube and some of the affluents of the Rhine; on the east they meet the Illyrian chain. With respect to direction the Alps are not uniform, but are divided into two distinct chains, supposed to be of different ages. The Maritime Alps, the most westerly part of the system, strike from south-south-west to north-north-east; the High Alps, or principal chain, stretch from west-south-west to east-north-east. It is at the point where these two chains cross each other that the Alps attain their greatest elevation, and that Mont Blanc rears its snowy crest 15,732 feet above the sea. Mont Rosa, about 50 miles further east, rises to within 300 feet of the same elevation, and the average height of the whole range between these two summits cannot be taken at less than 11,000 feet. The mean height of the Alps throughout their whole extent is probably about 8000 feet; and many points reach an elevation exceeding 12,000 feet. As the limit of perpetual snow lies but little above the mean height of the Alps, being

on the north side about 8700 feet above the sea, while towards the south its elevation varies from 8500 feet to 10,100 feet, it is manifest that an extensive area in this region must be covered with perpetual snow. From the snowy heights vast glaciers also descend along the valleys, till they reach, in some instances, the moderate elevation of 3000 feet.

The Apennines may be conveniently, though, from the geological point of view, not perhaps correctly, considered as a branch of the Alps. After a winding course round the Gulf of Genoa they turn to the south-east, and constitute the central ridge of the Italian Peninsula. This chain has a length of 600 miles, with a breadth varying from 20 miles to 60 miles. In Puglia it spreads into a wide table-land about 1500 feet high. The highest point of the Apennines is the Monte Corno, in lat. 42° 27′ N. (the summit of the mountain called Il Gransasso d'Italia), 9542 feet high. The prevalent and characteristic rock of the Apennines is a primitive limestone, without fossils. The Euganean Hills near Padua, the Albanian Hills near Rome, and Vesuvius at Naples, are all of volcanic origin, and quite distinct from the Apennines. To the latter, however, belong the mountain groups which, often attaining the height of 6000 feet, form the island of Sicily; but here again the volcanic Etna, 10,837 feet high, must be regarded not as a part of, but as an accident in, the system.

The Dinarian or Illyrian Alps branch off from the High Alps at the head of the Adriatic Sea, in a direction parallel to that of the Apennines. They rise nowhere higher than 6000 feet; but overhanging the sea, and occasionally covered with fine forests, they have a grand appearance. After continuing in the same direction for about 200 miles, this chain merges in the Balkan, the Hæmus of the ancients, which extends to the Black Sea. As the Pyrenees and Alps cut off the two western peninsulas, so the united chains of the Illyrian Alps and the Balkan separate that of Greece from the rest of Europe. South of these, and parallel to the Balkan, runs the Despoto-Dagh, the Rhodope of the ancients, the eastern portion of which attains the height of 8000 feet. Still further south, Pindus strikes to the south-east, and forms the central ridge of the Grecian Peninsula; it reaches 7000 feet above the sea at its highest point; and Taygetus, in the Morea, about 1000 feet higher. The mountains of Greece, though covered deeply with snow during the winter, nowhere reach the line of perpetual congelation.

North of the Alps and extending east there rise several groups and chains of mountains which collectively separate the basin of the Danube on the south from the basins of the rivers that flow into the North and Baltic Seas. At the sources of the Weser we find the Harz, and south of this group the Thüringerwald Mountains; the Brocken, in the former, the Beerberg, in the latter, attain the heights of 3660 and 3075 feet respectively. Then come the Fichtelgebirge, the Erzgebirge, and Böhmerwaldgebirge; these last two chains diverging, the former north-east the latter south-east, so as to embrace Bohemia on the west. All of these chains are for the most part under 3000 feet in height, though Mont Arber, in the Böhmerwaldgebirge nearly attains 5000 feet. After the

Erzgebirge follow the Sudetes, the northern portion of which, bounding Bohemia on the north-east, takes the name of Riesengebirge (Giant Mountains), and here the Riesenkoppe (Giant Peak), the highest mountain of Germany north of the Danube, reaches the elevation of about 5300 feet. Further to the east the Krapatski or Carpathian chain incloses the great plain of Hungary, attaining in several places an elevation of 8000 or 8500 feet.

The Ural Mountains, which serve as a boundary between Europe and Asia, extend nearly in the meridian, or from north to south, through 18 degrees of latitude, or from lat. 49° to 67°, but north of 60° they are not habitable by civilized man. The highest known summit of the Ural—Töll-Poss, in lat. 63°—reaches the height of 5540 feet; but, generally speaking, the chain is low and presents to the eye only a series of rounded hills. Towards the south it spreads out into a fan-shaped group of low mountains, covered with thick forests and fine pastures, and therefore much frequented by the Bashkirs.

PLAINS.—To complete the physical delineation of Europe it remains only to describe briefly the plains which, together with the framework of mountains already sketched, make up the continent. The great plain of North Europe commences at the northern base of the Pyrenees; comprehends Western France, Western and Northern Belgium, Holland, and part of Denmark, all the northern provinces of Germany, and the greater part of Russia, there expanding both southwards to the Black Sea and the Caspian, and northwards to the Arctic Ocean, and terminates in the east only at the Ural Mountains. A large portion of this plain, beginning at the Scheldt, and extending through Holland, Bremen, Ditmarsh, Hanover, and the northern provinces of Prussia, is a low sandy level, sometimes covered with heath and brushwood, sometimes resembling a sandy desert, not unfrequently, also, below the level of the sea or rivers, and protected from inundation only by means of strong dykes; or if liable to be submerged, then converted into marsh. Nearly the entire surface of European Russia is a plain, diversified only by moderate undulations; and that plain is, in superficial extent, equal to all the rest of Europe; or, in other words, it is half of Europe. Owing to its vast extent it can attain a considerable elevation by an ascent quite imperceptible; and the ridge of Valdai, which separates the basins of the Volga and Dnieper, flowing into the Caspian and Black Seas, from that of the Dwina, which runs into the Baltic, has an absolute height of nearly 1200 feet. Besides this great plain or series of plains there are two others too important to be passed over in silence; these are, the plain of Bohemia and the plain of Hungary; the latter with an area of 40,000 square miles, a great part of which is almost perfectly level.

RIVERS AND LAKES.—The various chains of mountains, from the Cevennes to the Carpathians, which divide the waters running into the Mediterranean from those flowing into the Atlantic Ocean, the Baltic, or the North Sea, form collectively a ridge parallel to the High Alps, stretching from west-south-west to east-north-east; and consequently the streams flowing from its north side, or through the plain, all incline more or less to the west, and, owing to the breadth of the plain which they traverse with a moderate fall, they are all navigable to a

considerable extent. The Ebro, at the south foot of the Pyrenees, holds a course parallel to these mountains; but the other large rivers of the Spanish Peninsula run, like the mountain chains which confine their basins, in a direction parallel to the High Alps. From these last-named mountains descend, as might be expected, some of the largest of the European rivers—the Danube, the Rhine, the Rhone, and the Po all have their sources in this central chain. It is remarkable that the Volga, which is the longest of European rivers, having a direct length of nearly 1700 miles, as against perhaps 1000 miles the direct length of the Danube, and a length including windings of 2400 miles, derives but a small proportion of its waters from the heights of the South Ural. Its chief sources are little more than 1000 feet above the sea; but as its basin is very extensive, the tract of country which it drains has a fall so moderate that the channel of the river is always full. The lakes of Europe accompany the chief mountain systems, and may be divided into two groups—the Alpine and the Scandinavian. A chain of lakes runs along the north side of the Alps through Switzerland and the Tyrol; and along the south side through Lombardy and Styria. Among the former are the lakes of Geneva, Neuchâtel, Thun, Lucerne, Zürich, and Constance; among the latter the Lago Maggiore, and the lakes of Como, Lugano, Iseo, and Garda. The Scandinavian lakes extend across Sweden from west to east, beginning at the south termination of the mountains; and on the east side of the Baltic a number of lakes stretching in the same direction across Finland, on the borders of Russia, mark the continuation of the line of depression. It is in Russia that the largest European lakes are found—Lakes Ladoga and Onega.

GEOLOGY AND MINERALOGY. — In the present state of geological knowledge it is impossible to give a geological history of Europe, that is, any fairly probable account of the successive changes by which the earth's crust in Europe has been brought to its present form and structural condition. There are still great gaps even in our knowledge of the superposition of strata in certain parts of Europe, especially Spain and Turkey; and even if that were not the case, it would exceed our present limits to attempt even the most general outline of this part of the geology of Europe. The present paragraph will accordingly be confined to a sketch of the leading features of the superficial geological structure of this continent. Perhaps the most striking feature in the superficial structure of Europe is the greater predominance of the older formations, including eruptive rocks and the older sedimentary strata, in the northern part of the continent as compared with the southern half, or still more with the middle region. In the whole region lying north of the latitude of Edinburgh and Moscow there is very little of the surface of more recent origin than the strata of the Upper Jura belonging to the mesozoic period, and there are vast tracts occupied either by eruptive rocks or one or other of the older sedimentary formations. Thus the whole of Iceland, the greater part of the north of Scotland, and almost the whole of Scandinavia and Finland, consist of granite or other eruptive rocks including gneiss. It is only in quite recent times that this last portion of Europe assumed its present geological form. There is no question but

separation into peninsulas, the area of the European continent, notwithstanding its considerable length and breadth, does not much exceed 3,800,000 square miles, Caucasus being taken as the south-eastern limit towards Asia. Towards the east it grows more compact, or, in other words, it loses in Russia its characteristic peninsular features; but west of Cracow and the Russian territory there is hardly a spot in the European continent which is 300 miles distant from the sea.

SEAS.—The Atlantic Ocean takes different names in the various portions of it which wash the western shores of Europe: thus, between the north coast of Spain and the west coast of France lies the Bay of Biscay, where the ocean swell, rolling into the region of variable and restless winds, makes a perpetually troubled sea. Further north, between the coasts of France and those of the British Islands, the English or British Channel is likewise noted for uncertain and tempestuous weather and for its difficult navigation. The main portion of the sea between Great Britain and Ireland is named the Irish Sea; it communicates with the Atlantic on the south by St. George's Channel, on the north by the North Channel. The sea between Great Britain and the Low Countries Germany, Denmark, and Norway is named the German Ocean or North Sea. There are numerous islands on the continental shores of this sea, and about the centre of it lies the great sandbank known as the Dogger Bank. The average depth of the sea is about 31 fathoms. From this a great gulf or inland sea branches off to the east, winding round Denmark and Sweden and taking various names, the main portion of it, lying between Sweden, Russia, and Germany, being usually known as the Baltic. There is no appreciable tide in the Baltic, and as this sea receives many rivers, while it loses little by evaporation, its waters are much less salt than those of the ocean. Ice on the coasts obstructs the navigation for three or four months in the year. The whole length of this sea from the Skaw at the north of Denmark to the head of the Gulf of Bothnia cannot be less than 1200 miles. On the north of Russia the White Sea forms a deep inlet from the Arctic Ocean nearly 400 miles in length. Its shores also are annually frozen up for some months. The Strait of Gibraltar, in one place only 19 miles wide, forms the communication between the Atlantic Ocean and the Mediterranean Sea, which latter has an extension from west to east of 2500 miles, with a general width perhaps of 500 miles, but owing to its sinuous shores and deep indentations it stretches through 15 degrees of latitude. Its chief gulfs are the Adriatic Sea, above 500 miles in length, between Italy and Illyria; and the Archipelago, which lies between the Grecian Peninsula and Asia Minor. The Black Sea, which is connected with the Archipelago, extends from west to east nearly 700 miles, while its width is from 200 to 300 miles; and here again, on the north shores of this sea, even in lat. 45° N., we find the rivers and harbours frozen, and navigation prevented during five months of the year. The Mediterranean abounds with fish and furnishes the finest coral and excellent sponges. The European shores of the Mediterranean and its islands, both in scenery and climate, are among the most delightful portions of this continent. The Black Sea receives some of the largest rivers

of Europe, including the Danube, Dnieper, Dniester, and Don (through the Sea of Azof), and its waters consequently are very brackish.

MOUNTAINS.—The mountains of Europe form several distinct groups or systems, of very different geological dates, and capable of being considered as a whole only from that point of view which discloses their combined influence on the climate, physical character, and capabilities of the continent around them. The Scandinavian mountains, to which the great northern peninsula owes its form, and in some respects its peculiar climate, extend through 13 degrees of latitude (58°–71°), or above 900 miles, from the Polar Sea to the south point of Norway. The highest part of the chain is from the middle southwards, where there are two summits above 8000 feet; but there are many points in the northern part which have an elevation exceeding 6000 feet. The Scandinavian mountains nowhere form a narrow crest at their summits, but, on the contrary, they expand into plains, fells, fields, or fjelds, often 30 or 40 miles wide. Towards the east the mountain mass declines gradually; while on the west it falls abruptly to the sea, which forms along the coast of Norway numerous deep inlets or fiords, many of them remarkable for the magnificence of their scenery.

In the British Islands, as in the Scandinavian Peninsula, the mountains rise chiefly on the west; and, indeed, the older rocks, in both cases, seem to lie in parallel courses, as if they formed parts of one system. In the form of Scotland, the direction of Glenmore, of the estuaries of the Clyde and Severn, and in the deep inlets on the south-western coast of Ireland, may be seen strong traces of parallelism with the Scandinavian range, there being no peaks which attain the height of 4500 feet.

The mountains of France, in so far as they do not belong to the system of the Alps, occupy chiefly the southern and eastern departments; the northern and western parts of the country belong to the great plain of Northern Europe. Near the middle of the country is the large table-land studded with volcanic peaks which forms the mountains of Auvergne, and east and south from this table-land stretch the Cevennes from the banks of the Rhone to near the Pyrenees. The general elevation of both ranges is about 3500 feet, but both have peaks considerably higher. The Jura Mountains, extending about 200 miles north-east and south-west, form a barrier between France and Switzerland. The parallel ridges, chiefly limestone, of the Jura, present steep descents towards the south-east, gentle slopes in the opposite direction, and are separated by longitudinal valleys of great length, with few transverse breaks. The average height of the Jura is 3700 feet; but its highest point, the Molesson, reaches the elevation of 6560 feet. North of the Jura, the banks of the Rhine continue mountainous for a long way. On the west of that river, between it and the Moselle, rise the Vosges, which form a chain 120 miles in length, north to south, with a mean height not exceeding 2650 feet. The south-western portion of France, between the Rhone and the Swiss and Italian frontiers, is occupied by ramifications of the Alps, and on the border of Switzerland, but within French territory, rises Mont Blanc, the culminating summit of the Alpine system.

On the south, France is divided from Spain by the Pyrenees, a narrow chain,

small area in the north of the Caspian Sea, where the total annual rainfall is decidedly deficient.

VEGETATION.—With respect to the vegetable kingdom Europe may be conveniently divided into four zones. The first, or most northern, is that of fir and birch. This may be subdivided into the zones of lichen, birch, and fir. The heights inaccessible to other vegetation, up to the borders of perpetual snow, are occupied by lichens, the most valuable of which are the reindeer-moss and the Iceland-moss. The birch reaches almost to North Cape; the fir ceases a degree further south. The cultivation of grain extends further in these rude latitudes than might be at first supposed. Barley ripens even under the 70th parallel of north latitude; wheat ceases at 64° in Norway, 62° in Sweden. In the country of the Samoyedes, in East Russia, the limit of barley is in about 67°. Within this zone, the southern limit of which extends from lat. 64° in Norway to lat. 62° in Russia, agriculture has little importance, its inhabitants being chiefly occupied with the care of reindeer or cattle, and in fishing. The next zone, which may be called that of the oak and beech, and cereal produce, extends from the limit above mentioned to the 48th parallel. The Alps, though beyond the limit, by reason of their elevation belong to this zone, in the moister parts of which cattle husbandry has been brought to perfection. Next we find the zone of the chestnut and vine, occupying the space between the 48th parallel and the mountain chains of Southern Europe. Here the oak still flourishes, but the pine species become rare. Rye, which characterizes the preceding zone, on the continent gives way to wheat, and in the southern portion of it to maize also. The fourth zone, comprehending the southern peninsulas, is that of the olive and evergreen woods. The orange flourishes in the southern portion of it, and rice is cultivated in a few spots in Italy and Spain. The deciduous oak here gives place to the evergreen and cork oaks, with edible acorns. The lines which define the region favourable to the growth of each plant generally incline south towards the east; but, for the reason given in the paragraph on climate, it is otherwise with the vine, olive, and a few other plants, within certain limits.

ZOOLOGY.—The zoology of Europe offers little for remark. The reindeer and polar-bears are peculiar to the north. The south alone has lizards and serpents. In the forests of Poland and Lithuania the urus or bonasus, a species of wild ox, is still occasionally met with. Bears and wolves still inhabit the forests and mountains; but, in general, cultivation and population have expelled wild animals. The domesticated animals are nearly the same throughout. The ass and mule lose their size and beauty north of the Pyrenees and Alps. A few camels are bred in the neighbourhood of Siena, in Italy, in which country also buffaloes are used for draught. The Mediterranean Sea has many species of fish, but no great fishery; the northern seas, on the other hand, are annually filled with countless shoals of a few species, chiefly the herring, mackerel, cod, and salmon. The fisheries thus arising are intrinsically valuable, and have unquestionably exercised a great influence on the early history and advancement of North-western Europe.

ETHNOGRAPHY AND LANGUAGE.—Europe is occupied by many different

races, wholly distinct or very remotely connected. The Celts once occupied a large portion of Western Europe, and are supposed to have entered the continent from the east before the Germanic peoples. How far the Celtic race is represented among the inhabitants of Western Europe at the present day is difficult to say, but the area occupied by people speaking a Celtic language is comparatively trifling, comprising only Wales, Brittany, the Highlands and Western Islands of Scotland and parts in the west of Ireland. The race which has long predominated in Europe, and has supplied everywhere, except in Mecklenburg, the reigning families, is the Teutonic. Under this name are comprehended the ancient Goths, the Germans proper or High Germans, the Flemings, Dutch, and Frisians (Low Germans), the Danes, Swedes, and Norwegians (together included under the term Scandinavians), and the Anglo-Saxon or English race. The Scandinavians, Danes and Norwegians chiefly, colonized Iceland and the Faroe Islands, Shetland, Orkney, and others of the Scotch Islands. The Teutonic races have been settled in Europe from prehistoric times. To the east of the Teutonic race, though sometimes mixed with it, are the Slavonians, that is, the Poles, the Russians, the Bohemians, the Servians and Croatians, the Bulgarians and certain other peoples. The Wends, formerly a powerful nation on the southern shores of the Baltic, but now absorbed in the German race, were of this stock. In the south and south-east of Europe are the offspring of the Græco-Italic, or, as it is sometimes called, the Pelasgian stock, speaking the Greek and Latin, which latter absorbed the Etruscan and other languages of ancient Italy. These are the only European races whose history can be traced with anything like accuracy to a period long anterior to the Christian era. Greek was the language not merely of the Grecian Peninsula but of all the islands and Asiatic shores of the Ægean Sea; it was this language—rich, vigorous, and singularly perspicuous—that first gave expression to that pure taste, manly conception, and perfect freedom of speculation which now form the distinction of Europe. Modern Greek is spoken within a more limited range, though the Greek race is still widely spread round the shores of the Archipelago and Levant. The Romans by means of their soldiers, their colonies, and their administration spread their language over a wide area in the south and west of Europe, and the Italians, French, Spanish, and Portuguese, who all speak languages descended from the Latin, are frequently denominated the Latin or Romance races, though in point of origin these races are all mixed. The inhabitants of Roumania also speak a Romance tongue derived from Roman colonists. All the languages already mentioned, and without doubt the main portion of the people using them, belong to the same stock, the Aryan or Indo-European. But there are certain other races in Europe belonging to widely different stocks, and speaking languages widely different in structure. The principal of these are the Turks and Magyars, or Hungarians, who speak languages belonging to what is commonly called the Turanian stock or family. The Hungarians, having advanced from the East along the north side of the Black Sea, had settled themselves in their present position by the year 900 A.D. The fishing and hunting tribes of Northern Siberia also took part in this western movement, and the Finns,

advancing from the Obi, settled themselves in the countries now called Lapland and Finland. Affinities between the Hungarian language and that of the Finns can easily be traced, as well as between these and the Turkish. Turkish tribes occupied the steppes north of the Black Sea, probably at an early age. At present the Bashkirs in the South Ural are of Turkish race, to which belong also the Tatars of Kasan, those of the Crimea, and the Nogays on the Don. The Ottoman or Othman Turks (so named from their early Sultan, Othman or Osman), after being settled for ages in Asia Minor, and having held a considerable portion of the Byzantine dominions in Europe, at length took Constantinople in 1453, and constituted it the seat of their government. They are the only nation in Europe which has not adopted Christianity, and in their manners, customs, and whole civilization they are rather an Asiatic than a European people. A somewhat singular race still remains to be mentioned, the Basques, living at the inner angle of the Bay of Biscay on both sides of the Pyrenees, and speaking a language which seems not to be connected with any known tongue. The inconvenience arising from diversity of speech is much diminished in Europe by the great predominance of the languages of the Indo-European family, which are spoken by nine-tenths of the whole population.

HISTORICAL SKETCH.—The earliest extensive civilization in Europe was that of the Roman empire, which attained its greatest extent under Trajan in the beginning of the second century A.D. It then embraced the whole of southern and western Europe, its northern boundary being for the most part the Rhine and the Danube, beyond which, however, it held the tract between the Theiss and the Dniester, while Britain south of the Forth and Clyde was also included within it. About the end of the fourth century it was split into two divisions, an eastern and a western, the former comprising in Europe only the modern Turkey and Greece. A century later the western division was completely broken up owing to the incursions of Teutonic hordes from the north. Eastern Goths and Lombards settled in Italy, Franks in France, Western Goths in France and Spain, Anglo-Saxons in Britain. After this overthrow new civilizations were gradually built up in different centres, but centuries elapsed before any of the great states that now occupy the face of Europe can be said to have originated. England as a single kingdom dates only from the early part of the eleventh century; France and the mediæval German empire may be said to date from the final division of the great Frankish empire (that of Charlemagne) towards the close of the ninth century. The former increased very slowly to its present extent, and the latter, which embraced the whole of central Europe with a large part of Italy, soon came to be rather an aggregate of independent states than a single dominion, and after the peace of Westphalia, in 1648, the power of the emperor was little more than nominal. The dignity of emperor, previously elective, had by this time become virtually hereditary in the house of Austria. Austria first acquired an extensive dominion in the first half of the sixteenth century, and then too it was first recognized as a European monarchy. Prussia first became a kingdom in the early part of last century, and did not attain to its present extent till 1866. The modern German empire dates only from

1871. The nucleus of the Swiss Confederation was formed about the beginning of the fourteenth century, but the Confederation did not attain its present extent and organization till 1814. The Turks did not get a footing in Europe till the second half of the fourteenth century, and their present capital was acquired and the Eastern Roman Empire finally overthrown only in 1453. Russia may be said to date from the close of the fifteenth century, for it was only then that the Russians began to throw off the yoke of the Tatar hordes who had held them in subjection since early in the thirteenth century. Sweden, Norway, and Denmark were from a very early period closely associated in their history. Sweden existed as a separate kingdom from 1528, and Norway, which previously belonged to the Danish kingdom, was placed under the Swedish crown only in 1814 by the treaty of Vienna. The present kingdom of the Netherlands originated in a revolt against Spain in the second part of the sixteenth century. Belgium, after a very chequered history, acquired an independent monarchical government only in 1830, and the kingdom of Greece dates from the same year. Though Portugal existed as a separate kingdom (except for an interval of sixty years, when it was united to Spain) from the first half of the twelfth century, Spain was not united under one government till the close of the fifteenth. Italy had no united history till 1860, and it did not exist in its present extent till 1871. A Servian and a Bulgarian kingdom existed with varying extent, and in both cases with interruptions, from the seventh century to the close of the fourteenth, when they were both subjugated by the Turks. The former reacquired its independence as a tributary principality in the present century, and its independence was made complete by the treaty of Berlin in 1878, which also conferred a partial independence on Bulgaria. The same treaty likewise granted entire independence to Roumania, which had been more or less under the sway of Turkey since the beginning of the sixteenth century. The small state of Andorra in the Pyrenees is one of the oldest in Europe, having received the right of self-government from Charlemagne about the close of the eighth century. The still smaller republic of San Marino in Italy had its independence acknowledged by the pope in 1291, but existed as an independent state long before that. Monaco, in the south-eastern corner of France, appears to have been an independent principality under the protection of various powers from about the end of the tenth century. Of the states that have now completely passed away or lost their independence, the most important are Poland, Hungary, and the dominion of the Tatars in Russia (already mentioned), and of the Moors in Spain. Poland became a separate kingdom at the end of the tenth century, and existed as such till the close of the eighteenth, when it was completely partitioned between Russia, Austria, and Prussia. Hungary formed a separate state from the first half of the tenth century, and an independent kingdom from the beginning of the eleventh, but in 1535 it fell to the crown of Austria. The Moorish dominion in Spain began early in the eighth century, and for a time embraced the larger part of the peninsula, but after being gradually restricted to a smaller and smaller extent of territory in the south, was finally extinguished with the expulsion of the Moors at the close of the fifteenth century.

POLITICAL DIVISIONS OF EUROPE.—The following are at present the states of Europe, dependencies being indented under the sovereign states:—

STATES.	Area in Eng. sq. miles.	Ratio to Great Britain (B.) or Anglesey (A.)[1]	Population.	Designation.
Andorra,	149	·5 A.	18,000	Republic.
Austria,	240,337	2·66 B.	37,740,000	Empire.
Liechtenstein,	62	·2 A.	8,660	Principality.
Belgium,	11,366	·12 B.	5,536,000	Kingdom.
Denmark,	14,553	·16 B.	1,969,000	Kingdom.
Faroe Islands and Iceland,	40,266	·45 B.	83,000	
France,	204,090	2·27 B.	36,906,000	Republic.
Germany,	208,437	2·32 B.	45,194,000	Empire.
Great Britain and Ireland,	121,600	1·39 B.	35,004,000	Kingdom.
European Possessions,	145	·5 A.	170,000	
Greece,	19,353[2]	·21 B.	1,680,000[2]	Kingdom.
Italy,	114,205	1·27 B.	28,210,000	Kingdom.
Monaco,	6	·02 A.	5,700	Principality.
Montenegro,	3,658	·04 B.	236,000	Principality.
Netherlands,	12,731	·14 B.	4,037,000	Kingdom.
Luxemburg,	999	3·33 A.	205,000	Grand-duchy.
Portugal,	34,500	·38 B.	4,348,000	Kingdom.
Azores and Madeira,	1,311	4·37 A.	397,000	
Roumania,	49,262	·55 B.	5,376,000	Principality.
Russia and Poland,	1,928,700	21·43 B.	72,393,000	Empire.
Finland,	134,829	1·5 B.	1,969,000	Grand Principality.
San Marino,	22	·07 A.	7,800	Republic.
Servia,	18,786	·21 B.	1,720,000	Principality.
Spain,	192,967	2·14 B.	16,343,000	Kingdom.
Canary Islands,	2,808	9·36 A.	280,000	
Sweden and Norway—				Kingdom.
Sweden,	170,592	1·9 B.	4,579,000	
Norway,	122,280	1·36 B.	1,807,000	
Switzerland,	16,190	·18 B.	2,842,000	Federal Republic.
Turkey,	69,298	·77 B.	4,790,000	Empire.
Bosnia, Herzegovina, and the Sanjak of Novi-Bazar,	23,354	·26 B.	1,326,000	In Austrian occupation.
Bulgaria,	24,659	·27 B.	1,965,000	Principality.
Eastern Roumelia,	13,664	·15 B.	816,000	Autonomous Prov.
Total (in round numbers),	3,795,000	42·16 B.	318,000,000	

[1] The area of Great Britain in round numbers is 90,000 square miles, that of Anglesey 300 square miles.

[2] Not including the territory recently ceded by Turkey.

THE UNITED KINGDOM

OF GREAT BRITAIN AND IRELAND.

Of the islands forming the United Kingdom the two principal are Great Britain and Ireland, separated from each other by the Irish Sea, which, near the centre, has a width of about 130 miles, but between Holyhead in Wales and Howth Head in Ireland, in the track taken by the English packets, is not wider than 60 miles, and between the Mull of Kintyre in Scotland and Fair Head in Ireland

narrows to about 12 miles. Great Britain, the larger and by far the more important of the two islands, is the largest island in Europe, and the seventh largest in the world; the only islands ranking before it, in this respect, being Australia, Borneo, Papua, Sumatra, Niphon, and Madagascar. Its nearest approach to the continent of Europe is at its south-east extremity, where the Strait of Dover, separating it from France, is only 21 miles broad. On both sides of the strait the distance is rapidly increased. To the west the English Channel widens out till the extremities of England and France are 100 miles asunder. On the east, the German Ocean, where it separates England from Belgium and Holland, is also about 100 miles across; but a little north it suddenly attains thrice that width, and from this point north the east shores of Great Britain are at the average distance of 350 miles from the west shores of Denmark and Norway. The contour both of Great Britain and Ireland is so irregular that the length of coast-line when compared with the extent of surface is very much greater than that of most other countries. The whole coast-line of the two islands measures 10,800 miles, or about one mile of coast for every 11 square miles of surface; while that of France is only 3177 miles, or one mile of coast for every 64 square miles of surface. The coast-line of Great Britain by itself, 7904 miles, and that of Ireland by itself, 2895 miles, have each about the same proportion to their respective surfaces as the total coast-line has to the total area; but when we consider England (with Wales) and Scotland separately, we find that while the former division of Great Britain has a total coast-line of only 2765 miles, or one mile of coast for about 21 square miles of surface, the latter has a coast-line of 5139 miles, or about one mile of coast for every 6 square miles of surface. The greatest length of Great Britain measured on a line bearing north by west from Rye to Dunnet Head is 608 miles. The breadth, necessarily modified by the numerous indentations of the coast, varies exceedingly. The longest line measured from the west to the east coast on a parallel of latitude, between St. David's Head, in Pembrokeshire, and the Naze, in Essex, is 280 miles. The breadth is least in the northern parts of the island. Between the Clyde at Dumbarton and the Forth at Alloa it is only 32 miles. Notwithstanding the general compactness of Ireland, its opposite coasts and arms of the sea are so conveniently situated in regard to each other, that there is not a spot on its surface which is not, in some direction or other, within 55 miles of the ocean. The total area of the British Isles is 121,829 square miles; that of Great Britain (including the Channel Islands and the Isle of Man) 89,298 square miles; that of Ireland 32,531.

CLIMATE.—Among the many advantages which the British Isles derive from their geographical position, one of the most important is their excellent climate. In this respect the British Isles have the advantage of all countries of the same latitude to the east; and the advantage over the Asiatic continent is equivalent to a difference of more than ten degrees of latitude. The annual isothermal of 50° Fahr., which passes through the middle of Ireland about 53° N., then diagonally through Wales and the middle of the south coast of England between about 53° and 51° N., quits Europe about 45°, and passes through the

greater part of Asia in about 40° N. (the latitude of Peking). But this is by no means the whole amount of the advantage. A mean temperature is an average obtained by adding temperatures of different seasons together, and then dividing them. Hence it follows, that the same mean temperature may exist when the climates are of a different and almost of an opposite description. Now it is precisely in regard to range of temperature that the superiority of the British climate becomes most apparent. The range of the temperature between the coldest and the warmest months is, at Paris, 30°; at London, only 26°; in England generally, only 24°·5. The range of Edinburgh is 25°, while that of St. Petersburg is no less than 55°. The mean winter temperature of Dublin, only 39°, is 3° higher than that of Milan, Pavia, Padua, or the whole of Lombardy. In the north-east of Ireland the myrtle grows in the open air, as in Portugal; and in the south-east of Cornwall the mean temperature is only about 2° less than that of Montpellier and Florence. The only disadvantages under which the British climate labours are the excess of moisture which often accompanies the prevalent south-west winds, and the severe and piercing cold which almost invariably accompanies north and east winds, especially on the east side of the island. East winds, in particular, prevail in spring, and not only check vegetation, but tend to produce, or, at all events, greatly aggravate pulmonary complaints. Still the advantages already enumerated far more than counterbalance the disadvantages; and the cloudless skies of southern Europe, accompanied as they are with scorching heats which wither up the fields, and often make what should be the finest the least tolerable season of the year, poorly compensate for the magnificent foliage and rich verdure which, at the same season, give a peculiar charm to the British Isles.

AGRICULTURE.—In almost every district in Great Britain where the plough can move, farming of a superior description may be seen, and, according to Professor Thorold Rogers, "'it may be confidently averred that owing to improvement in stock and seeds, agriculture in the United Kingdom is at a higher level than in any other country." Instead of the slovenly manner in which, not a century ago, all operations upon the soil were performed, new implements, many of them of recent and ingenious contrivance, now execute the work in the most efficient manner, and with the least waste of draught. Draining, not confined as formerly to swampy spots, is extended systematically to whole farms, and every field of them, not a single furrow being left without its artificial drain of tiles or stones, into which the surplus water may percolate freely, and yet so gradually, as not to carry off nourishment along with it. Science, too, has been called in to act as the handmaid of art. The organism of plants, the primary elements of which they are composed, and the food on which they live, have been assiduously and skilfully investigated, and most important results obtained, particularly in regard to manures and rotations. These results, instead of remaining a dead letter, have passed from books into the hands of practical farmers; and the farmyard, though still justly retaining its pre-eminence, has ceased to be the only source from which the soil derives

its nourishment, and becomes capable of producing heavy crops. Artificial manures, in great variety, have come into common use, not only increasing the produce of lands previously cultivated, but extending the limits of cultivation itself. Steeps which, from the impossibility of carrying up the requisite weight of farmyard dung, could not be brought under a regular course of cropping, are easily supplied with a few hundredweights of bone-dust, or of some substance chemically prepared. Under an improved system of management the produce of many farms has at least been doubled. A peculiar feature of English as distinguished from Scotch husbandry is the large amount of arable land forming permanent hay-fields. These are kept fertile by heavy doses of farmyard manure, and yield grass of admirable feeding qualities. Much of the land thus employed is naturally of poor quality, having only a thin covering of soil over a hungry gravel or ferruginous tenacious clay, but by the careful management of perhaps a century has become covered with a close sward of the richest green, and of admirable feeding qualities. In the rearing and fattening of stock, and the improving of breeds, there is no country in the world that can be compared to several of the south districts of Great Britain. It is sufficient to mention, among horses, the race-horse, the finest type, and the parent of the best existing breeds of that animal; among cattle, the short-horns of Durham; and among sheep, the celebrated South Downs and Leicesters. In dairy produce, several districts are equally eminent. The principal crops grown in England, besides clover and grasses under rotation, are wheat, barley, and oats; turnips, potatoes, mangolds, and vetches, &c. In Wales and Scotland, oats greatly exceeds either of the other two principal grain crops, and in Scotland this crop covers at least three-fourths of the whole acreage under grain crops. The only green crops of much importance in Wales and Scotland, are potatoes and turnips. Hops are grown to a large extent in Kent, and less extensively in Sussex, Surrey, Hants, Hereford, and Worcester. The most marked feature in the agriculture of Great Britain during the last few years is the gradual increase in the proportion which the amount of land in grass, bears to that under corn and green crops; an increase due both to a pretty steady though slow decline in the extent of land in crops, and to a more rapid rise in the extent of land in grass. This change in the character of British agriculture is without doubt attributable to the increased facility with which cereals can be obtained from foreign countries, making it more profitable for our farmers to devote themselves to the rearing of live stock. Of the whole area of Great Britain less than 60 per cent is under the plough or in pasture; but in England the proportion is about 75 per cent, and in Wales above 60 per cent, while in Scotland it is under 25 per cent. Of the cultivated area of Great Britain, about 40 per cent is annually under all kinds of crops except clover and grasses, and the remainder in grass and permanent pasture or fallow; in England the proportions are about the same; in Wales they are about 22 and 78; in Scotland about 45 and 55. As the agriculture of Ireland has some special features, our remarks on that subject are reserved for the separate section on that part of the kingdom.

MINERALS.—Such is the mineral wealth of the British Isles, that, with exception of quicksilver, it is scarcely possible to mention a metal or mineral product of economical value which is not worked, to a greater or less extent, beneath their surface. Among these the first place is unquestionably due to **coal**, not merely because the annual output of it, in regard both to quantity and aggregate value, exceeds that of any other mineral product, but because without it the other natural resources of the country, and the industry of its inhabitants, must have for ever remained in a great measure undeveloped. The coal-fields are not confined to one particular district, but occupy a series of basins sometimes touching, but more frequently at a considerable distance from each other, and extending in an irregular curve from the southern slopes of the Ochil Hills to the Bristol Channel. The distribution of the principal coal-fields will be found more particularly indicated under the head Geology and Minerals in the sections devoted to the different countries composing the United Kingdom. The total amount of coal raised in the United Kingdom is about three times as much as is raised in any other country in Europe. The **iron** ores smelted in the United Kingdom are principally carbonates, which are invariably found to a greater or less extent and in a great variety of forms, with very different qualities, in the coal-measures. Yet more than two-fifths of the ores now smelted are oxides, principally hæmatite and hydrated oxide. The most important iron districts yielding carbonates are those of Yorkshire, especially the rich Cleveland district in the North Riding, Shropshire, Staffordshire, South Wales, and the coal-measures of Scotland. Red hæmatite (the richest of all the ores) is largely obtained in Lancashire and Cumberland; brown hæmatite to a smaller extent in South Wales and Cornwall. Hydrated oxide or brown iron ore is found principally in the counties of Northampton and Lincoln. Of iron also the United Kingdom produces at least three times as much as any other country in Europe. **Lead, tin,** and **copper** are the mineral products next in importance to coal and iron. Lead is obtained most plentifully in Durham and Northumberland, and also in considerable quantity in Cumberland, Shropshire, Derbyshire, and Yorkshire; in Montgomery, Cardigan, and Flint, in Wales; in the Isle of Man; in Lanark and Dumfries in Scotland; and in Wicklow in Ireland. Tin is obtained in Cornwall and Devon; and copper in the same counties as well as the Island of Anglesey and Ireland. **Zinc** is produced in considerable quantities in the Isle of Man, and in Cornwall, Denbigh, and Montgomery; and among the mineral products of less importance may be mentioned **gold**, found in Merionethshire in Wales, and Wicklow in Ireland; **ochre** and **umbre** principally in Anglesey, Devon, and Cornwall; **bismuth** and **manganese** in Cornwall; **arsenic** in Cornwall and Devon. Wherever lead is obtained **silver** is extracted from it, and **silver ore** is obtained in Cornwall. One important mineral product still remains to be mentioned, **salt**, which is obtained chiefly from rock-salt and brine-pits in such quantity as not only to suffice for home consumption but also to furnish a large amount for export. The locality in which salt is most extensively worked has its centre near Chester; and the supply is so great that it may be regarded as inexhaustible.

MANUFACTURES.—Taking these in the order of their importance we begin with **cotton.** In this branch of industry Great Britain still remains a long distance ahead of all the world, a superiority which it owes partly to its position, being conveniently situated both for receiving supplies of the raw material from its chief source the Southern States of the Union, and for sending out again supplies of the manufactured cotton to European and other countries where a demand for it exists—partly also to its great wealth in coal. The chief seat of the manufacture is in Lancashire, where Liverpool and Manchester, besides a number of other large towns, are more or less supported by this industry. The immense importance of the cotton manufacture to this country will be understood from the fact that the total value of the exports of cotton goods (including yarn) is found to be on an average one-third of the value of the total exports of native produce, and to be higher than the total value of the exports of home produce of every country in Europe except France and Germany.

Next in importance come the exports of **woollen** manufactures. This is our most ancient, and was for centuries our great staple manufacture. The flocks fed on our downs and other pastures furnished wool of peculiar excellence, and in such abundance as both supplied the home demand at a moderate price and left a large surplus for exportation. Though the manufacture cannot now boast of an extension like that of cotton, it holds the next place to it; and, besides working up the greater part of the wool grown within the kingdom, draws largely on other countries for additional supplies, particularly on our thriving Australian colonies. In the finer broad-cloths our manufacturers have formidable competitors in the Belgians, from whose forefathers we may be said to have learned this branch, and also in the Saxons; but in other woollens our position in several branches is at least as high as that of any other country, while in not a few our superiority is decided. The chief seat of the woollen manufacture is in England—the West Riding of Yorkshire, Lancashire, Gloucestershire, and Wiltshire being the most distinguished for broad-cloths; Norfolk for worsted stuffs, Leicestershire and Nottinghamshire for woollen hosiery. Blankets and flannels have numerous localities, but for the finer qualities the West of England and several of the Welsh counties are most conspicuous. Carpets, of every quality and pattern, are extensively made at Kidderminster, Cirencester, Worcester, &c.; but those of Wilton and Axminster are so superior as to suffer little by comparison with the celebrated fabrics of Turkey and Persia. A particular species of woollen manufacture, in which the resources of modern ingenuity are signally displayed, is that of shoddy. Its raw material is woollen rags, which, after various purifying processes, are reduced to their original wool, then re-spun, re-dyed, and re-manufactured. Formerly the article produced was so coarse as to be fit only for padding and similar purposes; but now, either alone or with a partial mixture of raw wool, shoddy is made into flushings, druggets, pilot and other great-coats, carpets, and table-covers, some of the last of great beauty. The principal seat of the shoddy trade is Dewsbury, about 8 miles from Leeds. The woollen manufacture of Ireland is on a very

limited scale. There are a few broad-cloth factories near Dublin and Cork; and other branches of the manufacture are carried on elsewhere, but only to a very limited extent. Scotland has made much more progress, but still bears no proportion to England. The chief seats of the Scotch woollens are Kilmarnock for carpets and shawls; Stirling and its neighbourhood for carpets and tartans; Galashiels, Jedburgh, Selkirk, and other places in the basin of the Tweed, for tartans, shawls, plaids, &c., and still more for the kind of cloth known as "tweeds," the manufacture of which originated here, though it has since extended to England; Inverness for tartans; and Hawick for hosiery.

The linen manufacture is also very extensively developed. In England the spinning of flax is carried on to a great extent, but its manufacture into cloth is comparatively limited. The chief seat of the manufacture is Leeds and its vicinity, and other parts of the West Riding; also parts of Lancashire, Dorset, and Durham. A considerable quantity of damask and diaper is made at Barnsley. Linen is the great staple of Ireland, where it is chiefly carried on in the province of Ulster; and in Scotland also it was long the staple among textile fabrics. In the former country extraordinary means were employed to foster it. It early fixed its seat in the north, particularly near Belfast, and there the great changes which have taken place in the mode of manufacture, by the substitution of spinning-mills and factories for the domestic wheel and loom, appear only to have fixed it more permanently. Almost the only form into which flax is manufactured in Ireland is plain linen, chiefly shirtings. In Scotland the manufacture assumes greater variety. Besides plain linen, it has manufactures of osnaburgs, sheetings, sailcloth, sacking, &c., which have their chief seat at Dundee; and of diaper and damask, the chief seat of which is Dunfermline. The staples of both towns are by far the most important of their kind in the kingdom; and the Dunfermline table-linens are not surpassed anywhere. Large quantities of jute are now spun in combination with flax at Dundee.

The silk manufacture is the only great textile industry in regard to which, at least in finer fabrics, we must yield the palm of superiority, and be contented with something less than equality. In this case, as with cotton, the raw material is entirely of foreign origin, being chiefly derived from China, but to a large extent also from Japan, British India, and France. The number of silk-mills is considerable, but they are confined chiefly to England. Paisley is almost the only town out of it in which it is carried on to a great extent; and even there the celebrated shawls of unrivalled excellence are generally a mixed fabric of silk and wool. The chief seats of the silk trade in England are the district of Spitalfields in London, Manchester, and Coventry.

Besides the manufactures already mentioned, there is a great number which, though separately of less importance, absorb immense sums of capital, exhibit many of the most wonderful specimens of human ingenuity, and give subsistence to millions of the population. First among these we may mention those branches known under the general name of hardware. Some of the articles produced are remarkable for their huge bulk and ponderous weight, while many of them are so small as to be almost microscopic. For minuter articles of hardware

reference may be made to the countless products of Sheffield and Birmingham, not excluding articles in the precious metals—plate, jewelry, and watches. In watch-making, however, London stands pre-eminent not only in the United Kingdom but in the whole world. Passing from metals we come to earths, both in the more ordinary forms of **pottery**, and in the form of **porcelain**, with its classic shapes and gorgeous colours and exquisite designs. In the district of the "potteries" in Stafford we see a great national interest almost created by the enterprise and genius of a single man. Among earths, too, at least as to principal constituents, we may include **glass**, and the numberless forms of beauty and utility which it has been taught to assume. One branch of this manufacture—the making of stained glass—has been considerably developed of late, and has produced beautiful results in stained windows for churches, public buildings, and private residences. The principal seats of the glass manufacture are Birmingham, London, St. Helen's, Newcastle, South Shields, Glasgow, and Edinburgh. Another manufacture, almost of equal beauty, and of more importance to civilization, is that of **paper**, which has always had its chief seat in Kent, though also carried on to a large extent in several places in Scotland. In connection with the paper manufacture are various others, of which it may be considered as, directly or indirectly, the parent—type-founding, printing, books, and with them literature in its various departments, engraving, &c.

FISHERIES.—The principal British fisheries are those of salmon, herring, and cod. The first is carried on chiefly in the rivers and estuaries of Scotland and Ireland; the second on all the coasts and islands of Scotland, the great centre of resort for curing being the towns of Wick, Peterhead, and Fraserburgh; the last around the northern islands, and along the east coast of Great Britain, particularly the edges of the Dogger Bank, off the coast of Yorkshire. Among minor fisheries may be mentioned those of mackerel, pilchards, oysters, and lobsters. Of these last, and indeed of all kinds of fresh fish, by far the largest consumer of the kingdom is London. One great obstacle to the general consumption of fresh fish was long presented by the difficulty of transport, but this is now much diminished by the facilities offered by railways, so that in some important inland towns, where fresh fish were previously known only as an expensive luxury, they can now be had at a price which places them within the general reach, so far at least as to afford a wholesome and grateful change of diet.

MEANS OF COMMUNICATION.—Of these the most important in the present times is the railway system, which, like a vast net-work, stretches over all parts of England and the heart of Scotland, clustering around large towns, and penetrating even into the mountainous parts of North Britain and of Wales; connecting all the principal cities, towns, and sea-ports, and conveying daily, from one to another, tens of thousands of passengers, and of tons of merchandise. The introduction of the railway system dates only from 1825, but so rapid has been its development that half a century after that date England alone possessed about one mile of railway for every five square miles of surface, representing a capital equal to nearly three-fourths of the national debt, and carrying annually a number of passengers equal to about one and a half times

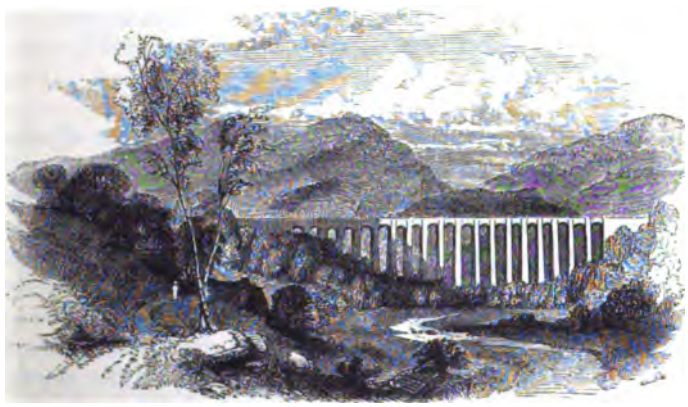
the whole population of Europe. Of still greater extent, and not less important in their department, are the common roads, affording easy means of access to the most secluded districts of the country. Besides numerous navigable streams, the United Kingdom possesses numerous canals. In England, one principal line, proceeding across the island, connects the Mersey with the Humber; another connects the Severn with the Thames. A third principal line cuts the other two transversely. Beginning in the north at Kendal, it proceeds south, passing or communicating by branches with all the great towns of central England, and uniting them all to the metropolis, and thence continues onwards to Portsmouth. In Scotland the most important canals are the Forth and Clyde Canal, 35 miles in length, from Grangemouth on the Firth of Forth to Bowling on the Firth of Clyde; and the Caledonian Canal, which runs from the Moray Firth on the east coast to Loch Eil, an arm of the sea on the west coast, passing through Loch Ness, Loch Oich, and Loch Lochy. The length, including lakes, is 60½ miles, that of the canal proper only about 22 miles. Ireland has several important canals, the principal of which are the Grand Canal, 166 miles in length, from Dublin to Ballinasloe on the Shannon, with a branch to Athy on the Barrow; and the Royal Canal, 96 miles in length, from Dublin to Termonbarry on the Shannon, above Lough Ree. All these means of communication are remarkable for the engineering difficulties overcome in their construction. The aqueduct of Pont Cyssyltau, which carries the Ellesmere Canal across the vale of Dee, is one of the early triumphs of engineering in Britain; and the railway tubular bridge and the suspension bridge over the Menai Straits by which the island of Anglesey is connected with the mainland are two of the greatest monuments of engineering science which the world has to show.

Suspension Bridge across the Menai Straits.

In the means of conveying intelligence also England occupies a leading place among the nations. The postal system, which was first placed in the United Kingdom on the basis on which it now rests throughout the civilized

world, has here attained a development which it has reached nowhere else. Within forty years after the introduction of the penny post the number of letters delivered in England per head of the population amounted to 37 (in Scotland 28, in Ireland 14), while in Germany it amounted to only about 17, and in France to about 13. Intelligence is likewise conveyed by the electric telegraph from one end of the country to the other, and by submarine wires to all parts of the Continent, to India, China, and Japan, to America, and to Australia.

TRADE AND COMMERCE.—Of the extent of the commerce carried on by railway, river, canal, and highway we have little or no means of forming an estimate. Even in countries where all the districts and towns are hemmed round with officers to levy custom on every article which may be brought into them, such statistics are extremely difficult to obtain, and they become mere matters of conjecture in a country like ours, where not a shadow of restraint prevents us from moving about at will, and transporting both our persons and our goods throughout its whole length and breadth. Our foreign commerce is more easily calculated, at least in its leading branches, and the magnitude to which it has attained is so great, and the strides with which it has advanced have been so rapid, especially since the introduction of free-trade, that it is impossible to contemplate it without astonishment. It is at least a half greater than the whole foreign trade of France, though that country has a larger population. As might be expected from the great development of manufacturing industry in the United Kingdom, the principal exports consist of manufactured articles, and the principal imports of the raw materials of our manufactures and articles of consumption for the enormous population dependent on those industries. Among the exports the most important is that of cotton goods and yarn, amounting, as already said, to one-third in value of the total exports of native origin; and next in importance are iron and steel and articles made of these materials, woollens, linens, and coals and other kinds of fuel. The principal imports are cotton, wool, and timber; grain, sugar, and tea.



Pont Cyssyltau, Denbigh, Wales.

The development of British shipping, when compared with that of other nations, is even greater than that of its commerce. Not only is the great bulk of the trade between this and foreign countries carried on in British ships, but so also

is a large part of the trade between one foreign country and another. Hence we find, on comparing the magnitude of the mercantile marine of the United Kingdom with that of France, for example, that the total tonnage of British ships of above 50 tons burden is more than seven times that of France, and the tonnage of British steamers about ten times the aggregate tonnage of French steamers.

RELIGION AND EDUCATION.—Every form of religion enjoys the most complete toleration, but there are two churches, one in England having an Episcopal form of government, and one in Scotland with a Presbyterian organization, established by law and partly supported by state endowments. Both of these are Protestant, and both in England and Scotland the great majority of those who do not belong to the established church are also Protestants. In England, however, these all belong to churches having a different organization from that of the Anglican Church, while in Scotland most of them belong to churches virtually identical with the established church both in creed and in organization. In Ireland there has been no state church since 1871, when a branch of the Anglican Church there established was disestablished. The great majority of the people are Roman Catholics.

The first comprehensive measure for the promotion of elementary education in England was passed in 1870. Its chief provisions are, one for the election of school-boards in districts in which there is a deficiency of school accommodation, with power on the part of these boards to build and maintain schools out of rates levied for the purpose, and another for the giving of supplementary aid by parliamentary grant to these board-schools as well as to previously existing schools. Discretionary power is given to the school-boards to enforce the attendance of children in their districts. By subsequent enactments it has been endeavoured still further to promote elementary education by the appointment of school-attendance committees in boroughs and school districts having no school-board, and by placing restrictions on the employment of children where their education has not been attended to. By the operation of these acts compulsory attendance of children at school has already been made the law for nearly three-fourths of the whole population of England and Wales and almost the whole of the borough population. The Scotch Education Act, passed in 1872, was from the first more comprehensive than the English one, requiring the election of school-boards in every burgh and parish, and virtually making school-attendance compulsory throughout the country. Ireland, on the other hand, is still far behind in the matter of education. The educational system there is under the superintendence of the Commissioners of National Education, a body incorporated in 1845, with power, among other things, to erect and maintain schools wherever they think proper. Of the schools receiving grants from this body some are vested in the commissioners or trustees representing them, and some are not so vested, but among the latter there are none to the building of which any grant has been made by the commissioners, the grants received by these being only for the payment of salaries and the purchase of books and other requisites. In the vested schools secular and religious instruction are given separately, and both Protestants and Roman Catholics can claim admission to them at suitable hours for the purpose

of teaching their own doctrines; in the non-vested the religious teaching is under the absolute control of the patron, who has the right to decide whether any, and if any, what religious instruction shall be given. There is no compulsory school-attendance in any part of Ireland. The average attendance is about one in ten of the whole population. Only about one-fifth of the funds required for the support of the schools is derived from school fees and other local sources, the remainder being given by grant.

For the higher education there are in England the Universities of Oxford, Cambridge, London, and Durham; and in addition to these: Queen's College, Birmingham; Owen's College, Manchester; and the Yorkshire College, Leeds, besides other institutions giving a university education in one or more departments; the training institutions for teachers; the colleges belonging to the different dissenting bodies; the great public schools of Eton, Harrow, Winchester, Rugby, Charterhouse, and Westminster; besides numerous endowed grammar-schools and private academies. London University is properly only an examining board, but in connection with it there are in London, University College, King's College, and Trinity College, the last of which is for music. In Scotland there are the four Universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews, the normal or training schools of the different religious bodies, and academies and burgh schools in every town of any size. Ireland has the University of Dublin, the Queen's University (comprising the Colleges of Belfast, Cork, and Galway), Maynooth College, academies and schools as in England. By the provisions of an act passed in 1878 a sum of £1,000,000, part of the surplus derived from the disestablishment and disendowment of the Irish Church, was set aside for the promotion of the intermediate education of boys and girls in Ireland, by carrying on a system of public examinations, by awarding exhibitions, prizes, and certificates to students, and by the payment of results fees to the managers of schools fulfilling certain prescribed conditions as regards their students and their schools.

PEOPLE.—The earliest inhabitants of the United Kingdom known to history were Celts, who inhabited both Great Britain and Ireland at the time of the Roman occupation. In the fifth century, however, the Celts were displaced throughout the greater part of South Britain and in the eastern lowlands of North Britain by the Anglo-Saxons, a Teutonic race from which there can be little doubt that the modern English and Lowland Scotch are mainly descended. The Celts were gradually confined to the mountainous districts of Wales and Cornwall in England and the Highlands of Scotland, and only in Wales and Scotland has the Celtic language survived in the island of Great Britain. The English language is the direct descendant of that spoken by the Anglo-Saxons, but contains a strong infusion of French elements introduced by the Normans in the eleventh and following centuries, as well as other elements chiefly of Latin and Greek origin introduced in later times.

The population of the United Kingdom is very unequally distributed in the three countries of which the kingdom is composed. England and Wales had, in 1881, a population equal to 445 to the square mile, which is a denser popu-

lation than any country in Europe except Belgium and Saxony; that of Ireland at the same date was 158 to the square mile, and that of Scotland only 123. Except Middlesex, which is largely occupied by the metropolis, the most densely populated county in England is Lancashire, which has a population of above 1800 to the square mile; and the population of the two counties of Lanark and Renfrew in Scotland, shows a ratio of above 1000 to the square mile; while East and West Flanders in Belgium, the most densely populated district on the continent of Europe, have a population of only about 650 to the square mile. The increase that has taken place in the population of Great Britain during the present century is very remarkable. At the first census, which took place in 1801 (and which did not include Ireland), the whole population of Great Britain was found to be a little under eleven millions; at the census of 1881 it was 29,700,000. The growth in the population of the whole kingdom between 1831, the date of the first reliable Irish census, and 1881 was from 24,400,000 to 34,863,000. This growth, however, was confined to Great Britain, for in Ireland the population rapidly declined for many years. It showed an increase between 1831 and 1841, but between 1841 and 1851 it showed, in consequence of the famine of 1845–46 and the emigration that followed, a great decline, and since then there is only one year (1876) in which the estimates of the registrar-general have shown an increase on the aggregate population. The general increase of the population of the United Kingdom is without doubt attributable to the unparalleled prosperity of our manufactures and commerce already referred to. Vast accumulations of wealth have been made, and vast multitudes of families are living in the daily enjoyment of the ordinary comforts of life. But all pictures have their darker shades, and our prosperity is by no means without alloy. Gigantic evils raise their heads in many quarters, and threaten to advance, in spite of all the efforts that are made to stay them. The population is not merely great in proportion to extent of surface, but is much more crowded together in

The Houses of Parliament and Westminster Abbey.

dense masses than that of any other country in Europe. France, besides its metropolis, had in 1876 only 8 towns with a population exceeding 100,000. The United Kingdom, besides its metropolis, had in 1881 no fewer than 27. All of these contain immense commercial or manufacturing establishments, in which myriads seek their means of subsistence, and live on from day to day, often from the scantiness of their wages unable, and oftener still, from improvidence or some worse habit, unwilling to make any provision for the future. But all trades are more or less fluctuating. Changes occur in the political world, or markets become glutted, and a sudden revulsion takes place. Want of employment at once dries up the only source from which the first necessaries of life could be obtained, and destitution and misery ensue. Pauperism also has struck its roots deep, and multitudes live solely on the pittance which a legal provision can obtain for them. The sum expended in relief of the poor amounts to above 6*s.* per head of the population in England and Wales, to above 5*s.* in Scotland, and to about 3*s.* 6*d.* in Ireland.

Windsor Castle.

GOVERNMENT AND DEFENCE.—The government of the United Kingdom is a limited hereditary monarchy, in which the executive power is lodged in the Sovereign, but controlled in its exercise by the legislative power, shared in common by three bodies, forming the Parliament, of which the Sovereign, though the first in dignity, is by no means the most influential member. The second and third of these bodies are the House of Lords and House of Commons, who meet in separate chambers. The seat of government is London, but Windsor Castle has been for centuries the chief seat of the Sovereign. Every enactment, before becoming law, must obtain the assent of each branch of the legislature, given first by the House in which it originated, and expressed either unanimously or by an open vote; then in like manner by the other House; and, finally, by the Sovereign, the date of whose assent is held to be that of the operation of the act, provided no other date is specially expressed. The House of Lords is composed of Lords temporal, that is, peers of blood-royal, British peers, representative peers not British, and of Lords spiritual. Peers of [illegible]yal sit by courtesy; British peers, after their first creation, by hereditary

right; representative peers by election. Peers of the last class are partly Scotch, partly Irish, and are elected by the other peers of their respective countries who are not British. Scotch peers, 16 in number, are elected for each Parliament; Irish peers, 28, sit for life. Lords spiritual are archbishops and 24 bishops of the Church of England. The House of Lords is presided over by the Lord Chancellor, and, in addition to its legislative, performs judicial functions, being, in all civil causes, the supreme court of appeal for Scotland, as it was till three years after the passing of the Judicature Act of 1873, for the three kingdoms. The members of the House of Commons, at present 652 in number, are elected for a single Parliament, which expires legally in seven years, and generally sooner. The qualifications of the electors vary, in minor points, in the different kingdoms; but the general principle is to give a vote for county members to every male not under legal incapacity, who within the county either owns houses or lands to the clear value of £5 per annum, or rents them to the amount of £12 per annum in England and Ireland, and £14 in Scotland; and a vote for borough members to every like male who has been for a year occupier of a house within the parliamentary borough (in Ireland it must be worth £4 yearly), and has paid poor-rates; and to lodgers occupying lodgings of £10 value unfurnished.

The fiscal system of the United Kingdom is very simple. The revenue is principally derived from customs and excise duties, stamps, taxes on land, inhabited houses, and incomes; and from the post-office and telegraph service. The customs duties are principally on wines and spirits, tobacco and tea, the excise principally on spirits and malt. The stamp-duties are chiefly levied on probates of wills, legacies and successions, and other deeds. The land-tax is the greatest anomaly among the heads of revenue in this country. It was first imposed in the reign of William III., as a substitute for various feudal dues then in operation, and is assessed by counties on the basis of a very unequal valuation made in connection with former subsidies, and fixed at the time of the original imposition of the tax. The assessment on the individuals in each county liable for the tax is made by commissioners consisting of the principal landowners of the county and their officers. The total amount to be raised by this tax was fixed for all time coming by an act of George III.'s reign at a sum a little above £2,000,000; but as the tax is redeemable by purchase, the total yield of the tax is now very much less. The house duty is levied in proportion to rent or annual value, and the income-tax in proportion to income with certain abatements and exemptions. The expenditure is chiefly in payment of the interest on the national debt, and on the army, navy, and civil service.

No one is required to serve either in the regular army or the navy, but any one enrolling in either of these forces must do so for a term of years. The army is small compared with that of other European countries, our insular position enabling us to rely for defence mainly on our navy, which every British government endeavours to keep in the highest state of efficiency. Besides the regular army there are two other forces for home defence, the militia and the volunteers. The militia is actually raised by voluntary enlistment for a term of years, but conscription may be legally resorted to in order to maintain or

increase its strength in case of necessity. This force is called together for drill only for a short period in each year.

COLONIES AND DEPENDENCIES.—In the following table are given the names of the principal parts of the British Empire throughout the world, together with various information concerning them:—

	Area.	Ratio to Gt. Britain.	Population.[1]	Pop. per sq. mile.	Date of Acquisition.
British Isles, ...	121,600	1·4	35,004,000	287	
British India[2]—					1625-1856
Under direct British rule,	869,700	9·64	186,000,000	214	
Native States, ...	604,600	6·71	54,200,000	89	
Ceylon, ...	24,700	·27	2,755,000	111	1796
Cape Colony and dependencies,[3]	241,000	2·68	1,369,000	5⅔	1806–1878
Natal, ...	18,750	·2	356,000	19	1843
Dominion of Canada, ...	3,205,000	35·55	3,670,000	1¼	1623–1760
Newfoundland, ...	43,000	·48	161,000	4	1583
West Indies and Bermudas, ...	13,340	·15	1,140,000	85	1605–1803
British Honduras, ...	7,562	·08	24,710	3	1670
British Guiana, ...	85,425	·95	240,500	3	1803
Australia, ...	2,945,000	32·7	2,120,000		1787
Tasmania, ...	26,215	·29	110,000	4	1803
New Zealand, ...	104,000	1·15	432,000	4	1814
Fiji Islands, ...	8,034	·09	112,000	14	1874

[1] The population given for the British Isles is that of the census of 1881. In other cases it is that of a previous census or estimate.

[2] Including the Nicobar, Andaman, and Laccadive Islands.

[3] The dependencies of Cape Colony are the Transkeian Districts, Basuto Land, and Griqua Land West.

In addition to the colonies and dependencies mentioned in the table, the British Empire comprises also in Europe—Heligoland, Gibraltar, Malta and Gozo; in Asia—the island of Cyprus (under British administration as part of the Ottoman Empire), and those of Kamaran, Perim, Mosha, and the Kooria-Mooria group off the coasts of Arabia, the fortress of Aden on the south-east coast of Arabia, together with the adjoining sultanate of Lahej, which is under British protection, the town of Mohammera on the Shat-el-Arab, Quetta in Beluchistan, the Afghan districts of Kurram, Pishin, and Sibi, placed by the treaty of Gandamak under the administration of the government of India, the Maldive Islands (tributary to Ceylon), the settlements on the Malay Peninsula, the Keeling Islands about 700 miles south-west of Sumatra, and Labuan on the island of Borneo; in Africa—the Gambia, Sierra Leone, Gold Coast, and Lagos settlements; and Walvisch Bay, Ichaboe Island, and Angra Pequeña Bay on the south-west coast, besides the Transvaal (under British suzerainty); in the Atlantic Ocean—the islands of Ascension, St. Helena, Tristan da Cunha, and the Falkland Islands, including South Georgia; in the Indian Ocean—Mauritius and its dependencies; in Australasia—the Norfolk Islands and all the small islands east and south of New Zealand; in Polynesia—Fanning, Malden, Starbuck, and Caroline Islands in the area inclosed between the parallels of 10° N. and 10° S. lat. and the meridians of 150° and 160° W. lon., and the island of Rotumah north of the Fiji group. The total area of the British Empire is upwards of 8,600,000 square miles, and the total population not far short of 300,000,000.

ENGLAND AND WALES.

England forms with Wales the southern, larger, and more important division of the island of Great Britain. The boundary between it and Scotland, the northern division of the island, is not very well defined, but consists of a tract of moor and mountain, stretching in a north-easterly direction from the Solway Firth to the Tweed. On all other sides it is washed by the sea. Its contour is very irregular, but its general shape may be described as that of a triangle, the

The Town and Headland of Whitby.

base of which has its extremities at the Land's End and South Foreland, while the sides are formed by straight lines drawn from those two points, and converging till they meet at the town of Berwick. The three sides of the triangle thus formed measure in a straight line, from Land's End to South Foreland, 317 miles; from South Foreland to Berwick, 345 miles; and from Land's End to Berwick, 425 miles; and thus, when added together, give a perimeter of 1087 miles. This, however, is only a very distant approximation to the truth. When the actual curvature of the coast is traced, and the opposite sides of its estuaries are included, the perimeter is found to be not less than 2765 miles. The space thus inclosed has a length, measured on a meridian from Berwick nearly to St. Alban's Head, of 365 miles. Its breadth, measured on a parallel of latitude, attains its maximum between St. David's Head, in South Wales, and the Naze, in Essex, where it amounts to 280 miles. The greater part of the English coast consists of cliffs, in some places clayey, in others rocky, and sometimes jutting out, as at Whitby, Flamborough Head, Beachy Head, the Isle of Portland in Dorset, the Lizard

and Land's End in Cornwall, St. David's Head in Pembroke, and St. Bees Head in Cumberland, into bold, lofty, and precipitous headlands. The most extensive stretches of flat coast are in the county of Lincoln, and from the southern part of Suffolk to the South Foreland in Kent on the east coast, and in Sussex and Hants on the south coast. The shortest distance between the waters of the opposite shores is in the north, where the outlets of the Esk and Eden, in the Solway Firth, are only 62 miles from those of the Blyth and Wandsbeck in the German Ocean. The area, as given in official documents, is 37,319,221 acres or 58,311 square miles, of which 32,597,398 acres or 50,933 square miles are in England, and 4,721,823 acres or 7378 square miles in Wales. This is exclusive of the Channel Islands and the Isle of Man, which together would add 193,647 acres or 302 square miles more to the area. The whole area of this portion of the United Kingdom with these additions amounts accordingly to 37,512,868 acres, or 58,613 square miles.

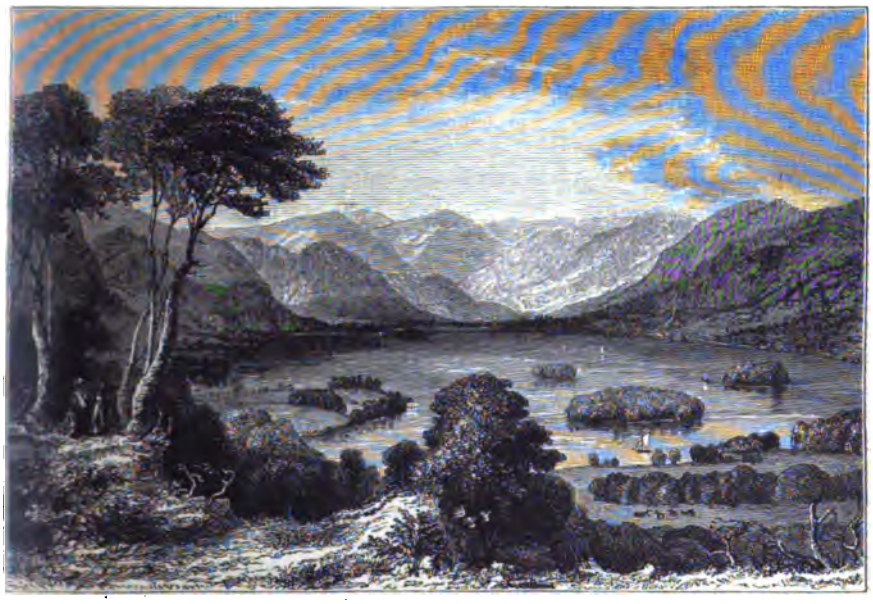
DIVISIONS.—The subdivision of England into counties is said to date from the time when the country was still under several kings, but it does not appear to have assumed a definite form till the time of Alfred the Great, who subdivided his dominions into 32 counties, with the names and nearly the boundaries which

ENGLAND.			
COUNTIES.	Area in sq. m.	Pop. April 4, 1881.	Pop. per sq. m.
Bedford,	461	149,461	324
Berks,	704	218,382	310
Buckingham,	730	176,277	241
Cambridge,	820	185,475	226
Chester,	1,102	643,237	583
Cornwall,	1,359	329,484	242
Cumberland,	1,516	250,630	165
Derby,	1,026	461,141	449
Devon,	2,586	604,397	178
Dorset,	980	190,979	196
Durham,	1,012	867,586	857
Essex,	1,648	575,930	349
Gloucester,	1,258	572,480	455
Hampshire,	1,611	593,487	368
Hereford,	832	121,042	145
Hertford,	611	202,990	332
Huntingdon,	359	59,614	166
Kent,	1,570	977,585	622
Lancaster,	1,888	3,454,225	1,829
Leicester,	800	321,018	400
Lincoln,	2,762	469,994	170
Middlesex,	283	2,918,814	10,313
Monmouth,	576	211,374	367
Norfolk,	2,119	444,825	209
Northampton,	984	272,524	276
Northumberland,	2,010	434,024	216
Nottingham,	822	391,984	476
Oxford,	734	179,650	244
Rutland,	149	21,434	143
Salop,	1,314	247,993	188
Somerset,	1,640	469,010	286
Stafford,	1,140	981,385	860
Suffolk,	1,484	356,863	240
Surrey,	786	1,435,842	1,852
Sussex,	1,450	490,316	338
Warwick,	885	737,188	834
Westmoreland,	783	64,184	82
Wilts,	1,343	258,967	192
Worcester,	738	380,291	515
York (E. Riding),	1,257	365,028	210
— (N. Riding),	2,120	346,147	163
— (W. Riding),	2,682	2,175,134	811
WALES.			
Anglesey,	302	50,964	168
Brecon,	719	57,735	80
Cardigan,	693	70,226	101
Carmarthen,	947	124,861	131
Carnarvon,	577	119,195	206
Denbigh,	613	108,931	177
Flint,	264	80,373	304
Glamorgan,	854	511,672	599
Merioneth,	602	54,793	90
Montgomery,	758	65,798	89
Pembroke,	616	91,808	149
Radnor,	432	23,539	54
Totalof England and Wales,	58,311	25,968,286	445

they still retain. The existing division was first completed in the time of Henry VIII., by Stat. 34, c. 26, which increased the 32 English counties of Alfred to 40, by the addition of the three northern counties of Northumberland, Cumberland, and Westmoreland, of which the Scots long had *de jure* or *de facto* possession; by the formation of Lancashire and Durham out of parts of Yorkshire; of Cornwall out of part of Devon; and Rutland out of Northampton; and the annexation of Monmouth to England; and introduced a variety of other changes, of which the most important was the complete incorporation of Wales with the English monarchy, and its subdivision into 12 counties. The names, areas, and population of the different counties are given on page 49.

PHYSICAL FEATURES.—The loftiest heights of England and Wales are situated at no great distance from its western shores, and consist, not so much of a continuous chain as of a succession of mountains and hills, stretching, with some interruptions, from north to south, and throwing out numerous branches on both sides, but particularly to the west, where all the culminating summits are found. The northern portion of this range has received the name of the Pennine chain. It is properly a continuation of the Cheviot Hills, and, commencing at the Scottish Border, proceeds south for about 270 miles, gradually lowering till, in the counties of Derby and Stafford, it assumes the form of an elevated moorland plateau. Its principal offsets to the east are in Northumberland and Durham, where they stretch, almost without interruption, to the coast, form the moorlands of those counties, and separate the valleys of the rivers Tyne, Wear, and Tees, which all take their rise in the chain. But by far the most important offsets are those of the west, more especially if we include in them, as we properly may, the lofty mountain masses which, from being most largely developed in Cumberland, are sometimes classed separately under the name of the Cumbrian range. This range, which links with the Pennine chain on the eastern borders of Westmoreland, covers a considerable part of that county, stretches across it, and, almost immediately after passing its border, attains, in Scawfell, the height of 3208 feet. Amidst these mountains lie the celebrated English Lakes, which give a peculiar charm to the romantic scenery of the district. The most important of them are Windermere, Derwent Water, Coniston Lake, and Ullswater. The first mentioned is the largest, measuring 14 miles in length by about 1 mile in breadth. The Pennine chain, with its appended Cumbrian range, is succeeded by one which surpasses it, both in the loftiness of its mountains and the extent of space covered by them. Viewed as the central portion of the great longitudinal chain, it properly begins where the northern portion terminates, in the Derby and Staffordshire moorlands, and proceeds southwards in the line of the Wrekin and other hills of Salop, the Malvern Hills, between Hereford and Worcester, and the Cotswold Hills, in Gloucester. But the great nucleus of the range must be sought much further to the west, where it covers the greater part of the principality of Wales, and has been designated, from its ancient name of Cambria, as the Cambrian range. Its principal ridge stretches through Carnarvonshire, from N.N.E. to S.S.W., ascending gradually from each extremity till, near its centre, it attains in Snowdon, 3571 feet, the culminating point

of South Britain. The last part of the longitudinal chain has received the name of the Devonian range. It may be considered as commencing in the Mendip Hills of Somerset, and then pursuing a south-westerly direction through that county and the counties of Devon and Cornwall, to the Land's End. Its culminating point, Yestor Beacon, near Okehampton, in Devonshire, is 2077 feet; and the wild and desolate tract of Dartmoor Forest, belonging to the range, and forming one of its most remarkable features, has an average elevation of 1500 feet. The average height of the range falls far short of this, and cannot be estimated higher than 1000 feet. In addition to the principal ranges which have now been



Derwent Water, from the Castlehead, Cumberland.

mentioned, there are others which, though of inferior elevation, are so distinctly marked, and have so much influence in determining the general features of the country, that a distinct idea of it cannot be obtained without adverting to them. One of these, which may be considered as a continuation of the Cotswold Hills of Gloucester, proceeds in a north-easterly direction, forming the principal watershed between the basins of the Wash and the Humber. Most of the other ridges may be considered as having a common point of departure in the county of Wilts. The most southerly, commencing near the town of Salisbury, proceeds eastward through Hampshire and Sussex, inclining gradually to the south till it reaches the coast near Beachy Head. Another ridge, to the north of the former, takes a direction nearly parallel to it, across the north of Hampshire, and through the middle of Surrey and Kent, finally bending round to the south-east, and reaching the coast at Folkestone. The third, and longest ridge of all, is very circuitous. Striking first eastwards it gradually turns to the north, and entering

Yorkshire takes the name of the Hambledon Hills, and at last spreads out into a large tract of moorlands.

VALLEYS, PLAINS, AND RIVERS.—Beginning in the north, where, from the extent of surface occupied by mountains and moorlands, and the comparative narrowness of the island, the open space left is very limited, the first valleys which we meet with on the east side are those of the Coquet and Tyne, the former not large, but very fertile, and the latter, though beautiful and romantic in its upper part, more remarkable in its lower for the treasures beneath its surface than for the richness of its soil. To the south of these is the vale of Stockton, bounded on the north by the highlands of Durham, and on the south by the eastern moorlands of Yorkshire. Its length, measured by the Tees, which traverses it, is nearly 40 miles, and its breadth, where widest, about 15 miles. On the west side of the island, nearly opposite to it, commences the beautiful valley of the Eden, which, at first hemmed in between the Cumbrian range and Pennine chain, gradually widens as it proceeds northwards, and finally spreads out into a wide plain of about 470 square miles, with the town of Carlisle in its centre. The next valley or plain which attracts our notice is in some respects the most important of all. It is known by the name of the Vale of York, and has an area of nearly 1000 square miles. In the north it unites imperceptibly with the Vale of Stockton, and is skirted by a number of small shallow lakes; moorlands proceeding from the Pennine chain bound it on the west, and the Hambledon Hills, already mentioned, on the east; in the south it sinks down into the marsh lands which line the north bank of the Humber. East of this vale is that of Pickering, to all appearance the bed of an ancient lake; and beyond that, on the north of the Humber, the district of Holderness, an extensive flat, generally composed of a rich alluvium, the productive powers of which appear to be all but inexhaustible. Properly speaking it is still the same plain which stretches, with scarcely a single interruption, across the counties of Lincoln, Suffolk, and Essex, to the mouth of the Thames, and to a considerable distance inland, occupying a large part of several of the counties immediately to the west. Returning again to the opposite side of the island, we meet with several flat and fertile tracts in Lancashire, particularly along the course of the Ribble, and in the plain which lies between it and the Mersey. This plain, not confined to the north bank of the river, but continued along its south bank into Cheshire, includes in it the rich and beautiful Vale of Warrington. Passing over Cheshire, in which, notwithstanding the ridges which traverse its west, and the heights which bound its east side, there is much level land, we are brought to the confines of Wales. The nature of the country here almost precludes the possibility of extensive plains, and gives the valleys generally a narrow rugged form, which, however favourable to romantic beauty, is not very compatible with great fertility. Wales, however, by giving rise to the Severn, can justly claim part in its vale, or series of almost unrivalled vales, along which it pursues its romantic course through the counties of Montgomery, Salop, Worcester, and Gloucester. The chief vales of the western counties as far as the Bristol Channel, and of the eastern as far as the mouth of the Thames, have now

been mentioned. Those of central England are numerous, but they are in general more remarkable for their fertility than their extent. In proceeding south we are first attracted by the name of Salisbury Plain, occupying a large portion of South Wilts. But it is only in name that it can be classed with the other plains and level lands of England, as it has a character peculiarly its own. It is in fact an elevated plateau, of an oval shape, extending about 22 miles from east to west, and 15 miles from north to south, and covered generally with a thin chalky soil, too unsubstantial to reward the labours of the plough, and applied to its best use when left undisturbed to form a green sward for the pasture of sheep. Among the remarkable features which it presents must not be forgotten the huge Druidical blocks of Stonehenge. Immediately to the north-east of it is an extensive tract of similar but rather more rugged appear-

Stonehenge, Salisbury Plain.

ance, called Marlborough Downs. From both tracts a number of streams descend and pursue different directions—north, east, and west. In the south-west the only vales deserving of notice are those of Taunton in Somerset and Exeter in Devon, the former containing about 100, and the latter 200 square miles. They lie at no great distance from each other, being separated only by the Blackdown Hills, and possess a beauty and fertility rendered still more striking by contrast with the rugged hills and barren moors of the neighbouring districts. A large portion of the south-east may be regarded as a continuous plain, consisting of what are called the Wealds of Sussex, Surrey, and Kent. It is bounded on the north and north-east by the secondary range of hills above described as terminating near Folkestone, and on the south for the most part by the South Downs, and contains an area of about 1000 square miles, having a length from west to east of 65 miles, and a breadth varying from 8 to 15 miles. As indicated by the Saxon name of Weald, it was originally a forest or hunting ground, occupied chiefly by herds of deer; and though the primeval forest has disappeared, magnificent oaks, for which the soil is well adapted, are still numerous, chiefly in hedgerows or around the inclosures, so as to give the whole district a finely wooded appearance. The south-east angle of this district is

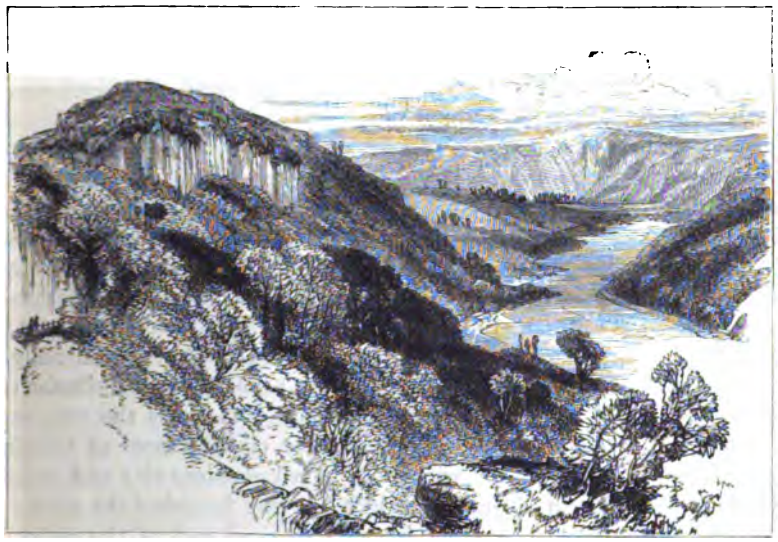
occupied by the Romney Marsh, an extensive level tract, which, taken by itself, contains 24,000 acres; but with the addition of several other small marshes, which properly form part of it, is not less than 46,000 acres. The soil is not of equal quality throughout, but is composed, for the most part, of a rich marine deposit, the whole tract having been not so much recovered as conquered from the sea. In summer it is luxuriantly verdant, and presents the appearance of one vast meadow covered with herds of cattle and flocks of sheep; but, lying so low that the water which collects upon it can escape only at ebb-tide through flood-gates in the lofty embankment which secures it from inundation, it is by no means favourable to health. The mention of Romney Marsh, reminds us of other

Crowland, in the Fen Country, Lincolnshire.

extensive tracts of a similar nature, comprehended under the general names of marsh lands and fens. These are situated partly in Somersetshire, on the shores of the Bristol Channel and the estuary of the Severn; but more especially on the east coast, in Yorkshire and Lincoln, where they are washed by the Humber; and in the counties which either border the Wash, or, like Northampton, Bedford, Huntingdon, and Cambridge, send their drainage into it, by the Nen and the Ouse. Many of these lands are naturally the richest in the kingdom; but their possession is held by a somewhat precarious tenure, and at the expense of an incessant struggle with the sea, which, having once made them part of its domain, threatens to resume them. In this strife between man and the elements it long remained very doubtful whether he was ultimately to prove the victor. By means of gigantic cuts, of which that known by the name of the Bedford Level is the most celebrated, thousands of acres have been laid dry, and apparently placed beyond the reach of danger.

If we consider the drainage of England as a whole, four principal river

basins may be distinguished, those of the Thames, Wash, and Humber, belonging to the German Ocean; and the Severn, belonging to the Atlantic. The basin of the Thames has its greatest length from east to west, 130 miles, and its average breadth about 50 miles. Its area is 6160 square miles. The basin of the Wash consists of the subordinate basins of the Great Ouse, Nen, Welland, and Witham, which all empty themselves into that estuary, and has an area computed at 5850 square miles. The basin of the Severn consists of two distinct portions lying on its opposite banks. That on the right bank is of an irregularly oval shape, and has for its principal tributaries the Teme and the Wye, while that on the left consists, except at one part where it projects far between the basins



The Wind Cliff and the Wye, Monmouthshire.

of the Ouse and Humber, of two narrow strips, not exceeding on an average 12 miles in breadth, the upper stretching from west to east, and the lower from north to south. On this bank, accordingly, the present stream has no tributary of the least consequence, with the exception of the Upper Avon, which drains the portion of its basin projecting between those of the Ouse and Humber, and the Lower Avon, which joins it only at its estuary. The area of the whole basin is 8580 square miles. The next basin, that of the Humber, has the largest area of all. It forms a quadrilateral figure, the longest side of which extends from the west of Warwickshire, a little south of the town of Birmingham, to the northern frontiers of Yorkshire, having a total length of 145 miles. Its greatest breadth, measured from the Humber west, is about 85 miles. In the north-west, opposite to Morecambe Bay, it approaches within 22 miles of the west coast. It consists of the three basins of the Humber proper, the Ouse, and the Trent, and its area is 9550 square miles, being about one-sixth of the whole area of England and Wales. The following table, of which the data are furnished by

Petermann's *Hydrographical Map of the British Isles*, exhibits the areas of the larger basins now described, as well as those of the independent minor basins, in the order of their magnitude:—

	sq. m.	sq. m.
Humber, including:—		
Humber proper	1178	
Trent	4082	9550
Ouse	4290	
Severn		8580
Thames		6160
Wash, including:—		
Great Ouse	2960	
Nen	1132	5850
Welland	708	
Witham	1050	
Mersey		1748

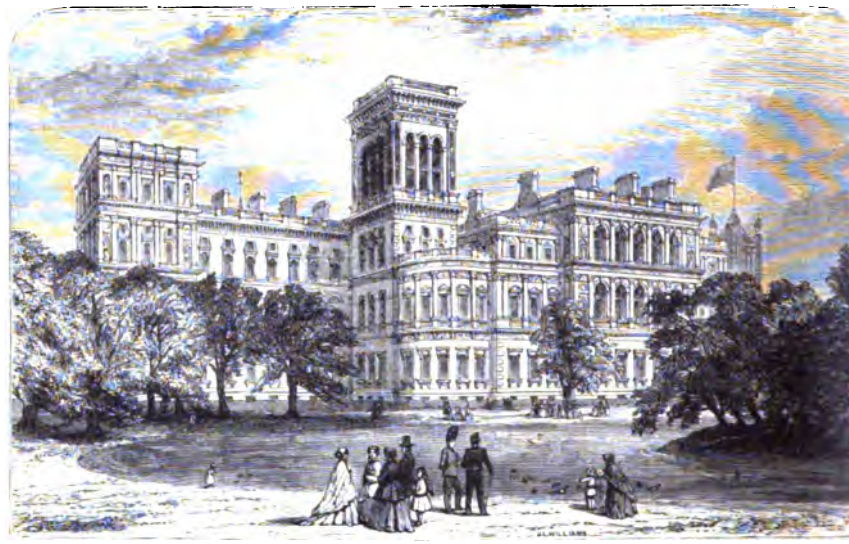
	sq. m.
Hampshire Avon	1210
Yare	1180
Tyne	1100
Eden	995
Dee	862
Tees	744
Ribble	720
Parret	653
Ex	643
Tamar	603
Towy	506

GEOLOGY AND MINERALS.—Beginning at the north, the most conspicuous geological feature, is formed by the Cheviot Hills, a porphyritic range, which once formed part of the boundary between two independent kingdoms, and sends its ramifications into both. Those which pass into England may be regarded as the commencing links of a long chain of mountains and hills, which extends, with scarcely a single interruption, along the west side of that division of the island, forming its most important water-shed, and throwing out numerous branches, the principal of which are those which penetrate into Cumberland and Wales. In the northern part of this chain, or that part to which the name of Cumbrian range is sometimes given, granite and a species of basalt are occasionally seen, but the prevailing rocks are slates and sandstones, belonging to the silurian series. In other parts of this range trap-porphyry occurs. It forms the very summit of Scawfell, and is seen in still more interesting circumstances at Sotaller, in Borrowdale, where, at its contact with a bed of red unctuous clay and ironstone, occurs the celebrated vein of graphite, which has long furnished the finest black-lead pencils in the world. Another largely developed rock of the same range is the mountain limestone, which, if anywhere, here truly deserves the name; inasmuch as it forms lofty mountain-masses—Ingleborough, Whernside, Penigant, and Cross Fell being almost entirely composed of it. This limestone is often intersected by rich veins of lead. In the Cambrian, as in the Cumbrian range, the rocks lie low in the geological series, and consist almost entirely of slate, and different varieties of trap and porphyry. The great exception is towards the southern limits of the range, where the Silurian rocks are overlaid by an extensive tract of old red sandstone, overlaid in its turn by the mountain limestone, which, like a girdle, encircles the most extensive, if not the most valuable of the British coal-fields. To the south of the Cambrian is the Devonian range, stretching from the Bristol to the British Channel, and though lofty enough when viewed from the level of the sea to present a coast of remarkable boldness, too low to deserve the name of mountainous. Here granite is extensively developed, and, often possessing the property of decomposing rapidly, furnishes the white clay called *kaolin*, of which our finest porcelain is made. The granite is overlaid by the old red sandstone, or rather by a slate which is considered to be its equivalent, and

prevails to such an extent, particularly in Devonshire, as to have given its name to a geological formation, hence termed the Devonian series or system. Here the mineral treasures are tin and copper, veins of which, generally at a high angle and in a direction from east to west, intersect the slate and granite, and vary in width from a few inches to several feet. Not unfrequently a vein commencing with tin passes into a vein of copper after a considerable depth has been reached. Tin, too, occurs in the sands of rivers and valleys in the form of grains and pebbles, and is known by the name of stream-tin—the rocky walls which once inclosed it having evidently been decomposed and washed away.

The different ranges now described as occupying the west side of England, and stretching, with only one considerable interruption, from its north to its south extremity, are composed entirely of primary rocks, standing no higher in the geological series than the strata of the carboniferous system. The interruption referred to is the extensive tract lying between the mountains of Wales and those of the Pennine chain, and occupied chiefly by Cheshire and parts of Staffordshire and Shropshire, in which the superficial strata are subsequent to those of the coal-measures. On proceeding east the case is reversed, and the oldest strata which occur are identical with those which on the west side are found to be the most recent. The lowest strata on this side are those of the mountain limestone or coarse quartzose sandstone, known by the name of millstone grit, on which our coal-fields are usually based, and ascending by regular gradations up to the more recent tertiary deposits. The coal-fields, notwithstanding their incalculable economical value, occupy a comparatively limited extent of surface—an extent certainly not underestimated at one-twentieth of the whole. The most extensive are that of South Wales in Glamorgan and Carmarthen, that of South Lancashire, that of South-west Yorkshire and Derbyshire, and that of Durham and South Northumberland. Numerous smaller ones are scattered over the counties of Leicester, Warwick, Worcester, Stafford, Salop, Denbigh and Flint, and there is an isolated field on the north coast of Cumberland, the workings of which have been carried at Whitehaven and Workington to a considerable distance under the sea. A line drawn from Lyme Regis to Bath, thence to Gloucester, Warwick, Leicester, Nottingham, and Tadcaster, and from Tadcaster to Stockton-on-Tees, has on its east side nearly two-thirds of the whole surface of England. In the whole of this space no coal is worked. If the series of strata is regular, there can be no doubt that coal exists; but probably at a depth far beyond the reach of any known means of excavation. Immediately above it lie immense beds of red marl, sands, sandstones, and conglomerates, composing the new red sandstone series, and remarkable for the saline springs and rock-salt with which it abounds. This series, from its proximity to the coal, is usually at no great distance from the coal-fields, and its lower strata must often be pierced to great depths in order to reach them. It occupies a considerable portion of surface, but its saliferous deposits nowhere appear so rich as in the neighbourhood of Chester. Above the new red sandstone is the oolitic series, composed of numerous beds of lime-

stones, clay schists, and sandstones, and stretching with partial interruption from the south of England into Yorkshire. It is rich in fossils and beds of fireclay, and furnishes much of the finest building stone in the kingdom. Passing the wealden series, so called from having its chief development in the Weald of Sussex, we reach the chalks, which occupy the uppermost place in the secondary formation, and which, though confined to a few patches of North Britain, constitute a marked feature in the geology of South Britain. The tertiary formation, which includes all the rocks above the chalk, is of comparatively limited extent, and is succeeded by immense beds of diluvial gravels, sands, and clays, in which are found remains of the larger existing quadrupeds,



LONDON.—The Foreign Office and India Office, from St. James' Park.

several of them, like the elephant and rhinoceros, belonging to genera which now exist only in much hotter climates. Above these diluvial beds lie alluvium and other superficial deposits, the constituents of which, mainly depending on the rocks from which they have been disintegrated, determine the natural properties of the soil, sometimes giving it an almost inexhaustible fertility, and sometimes dooming it to perpetual barrenness.

CHIEF TOWNS.—The most important town in England is of course London, the capital of the kingdom, the most populous place on the globe, and probably the most populous that has ever existed. It is situated on both sides of the Thames, in the counties of Middlesex, Surrey, Kent, and Essex, and within its parliamentary boundaries includes, besides the city of London proper and the city of Westminster (in which are situated the government offices, the Houses of Parliament, and the royal palaces of St. James's and Buckingham Palace), eight separate boroughs, known as the metropolitan boroughs. Within the limits assigned to it by the registrar-general's tables of mortality it has an area of 78,080 acres,

and according to the preliminary returns of the census of 1881 its population then amounted to 3,814,000. In spite of the immense aggregate of population gathered together in this centre, London is one of the healthiest cities in Europe, its annual death-rate being only about 23 per thousand, while that of Manchester, Liverpool, and Dublin is from 28 to 29 per thousand. This fact is no doubt ascribable to the excellent system of sewerage that London now enjoys. Besides being the seat of government, London is the head-quarters of the administration of justice, of banking and commerce, of science, art, and literature. Here are situated the supreme courts of law, the

The Royal Exchange and Bank of England.

chief establishment of the Bank of England and the other principal banking institutions of the kingdom, the principal museums and galleries (the British Museum, the library belonging to which is the largest in the kingdom and one of the largest in the world, the National Gallery, the South Kensington Museum, the Royal Albert Hall of Arts and Sciences, &c.); and here also the principal scientific and learned societies (the Royal Society, Royal College of Physicians, Royal Geographical Society, Institution of Civil Engineers, &c.), hold their meetings. Of all the public buildings of London the most noted historically is the Tower, the most ancient part of which was erected about 1078 for William the Conqueror by Gundulph, bishop of Rochester. It is situated just outside the liberties of London on the banks of the Thames, and now contains the regalia of Great Britain, besides numerous specimens of offensive and defensive armour of all periods. Among the other public buildings, besides those already mentioned, the most important are the Mansion House (the residence of the Lord Mayor) the Royal Exchange, the Stock Exchange, the Corn Exchange, the Guildhall,

which is the civic palace where the principal business of the corporation of the city of London is conducted, St. Paul's Cathedral, Westminster Abbey, and Lambeth Palace, the residence of the Archbishop of Canterbury. The port of London extends as far down as Gravesend. Its shipping is greater in amount than that of any other port in the world, and the annual value of its imports is about one-third of that of the total imports of the United Kingdom. It will give some idea of the enormous amount of shipping connected with this port to mention that the number of vessels that enter every year is equivalent to about one every eleven minutes. The public parks of London comprise nine royal parks, the principal of which is Hyde Park, with an area of about 400 acres, and two people's parks, besides several commons and open spaces under the management of the metropolitan board of works. The royal parks have an aggregate area of 1790 acres, and are all well planted and ornamented; the aggregate area of those under the board of works is about 1500 acres. Besides the ordinary facilities for internal communication, cabs, omnibuses, and tramways, London has a provision for this purpose peculiar to itself in a system of underground railways, on which trains proceeding in different directions succeed one another with surprising frequency. At some of the great railway stations of London the amount of traffic carried on is prodigious. At Cannon Street station, for example, the number of trains entering and leaving on certain days has been found to be nearly equal to one every two minutes. The corporation of London consists of 206 common councilmen, and 25 aldermen besides the lord mayor, but its functions are confined to the city proper. The nearest approach to a municipal body for London in the larger sense is the metropolitan board of works, a board constituted for the better sewering, draining, paving, cleansing, lighting, and improving of the metropolis, and consisting of forty-five members elected by the common council of the city and by the parishes and districts into which the metropolis is divided. The board was created by act of parliament in 1855, and since its creation, besides constructing the system of sewerage already referred to, has made various other improvements, chiefly in the way of opening up new streets in the more crowded parts of the town. The most remarkable of the new traffic routes constructed by the board is the embankment of the Thames called the

LONDON.—St. Paul's, from the Tower of St. Anne's, Blackfriars.

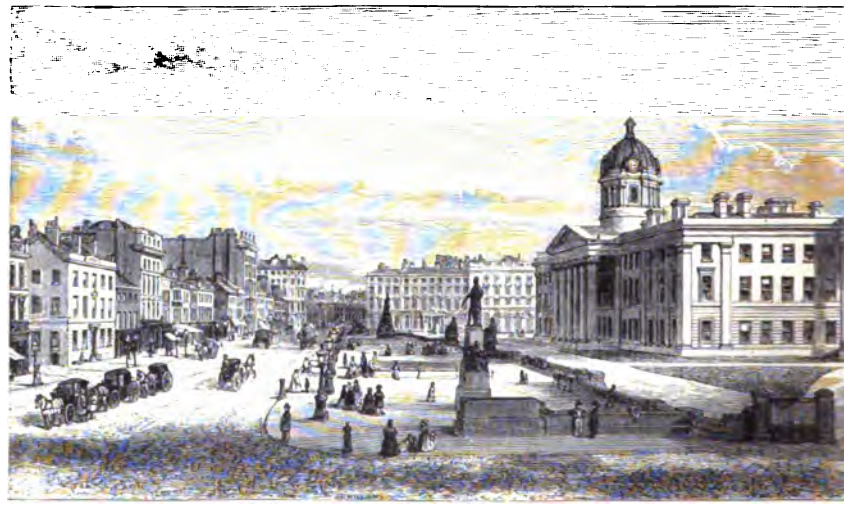
Victoria Embankment, extending from Blackfriars Bridge to Westminster, and consisting of a roadway 100 feet in width and about a mile and a quarter in length, with a retaining wall on the side of the river faced with granite and surmounted by a moulded parapet of the same material. It affords accommodation for traffic both above and below, for underneath it passes the Metropolitan District Railway; but it was not merely to provide this accommodation that its construction was undertaken, but also by contracting the channel of the river to increase the scour, and thus prevent the formation of the mud-banks that used to exist in certain parts of the course of the Thames through London.

The second city in England, both in point of population and in other respects,

LIVERPOOL.—The Public Library and Museum.

is Liverpool on the Mersey. Its population at the census of 1881 was 552,000. It is nevertheless a place of comparatively recent origin, having been at the end of the seventeenth century still a small and insignificant town. It owes its present prosperity to its admirable situation for transmarine commerce and especially for commerce with the New World, and the beginning of its commercial development may be referred to the year 1709, when the first wet dock in Liverpool, and indeed in the kingdom, was constructed. Its docks and basins now extend along the Mersey for eight miles, and among the ports of the world Liverpool ranks second only to London, which it even surpasses in the value of its exports. Raw cotton and cereals are the two chief imports, the former being highest in value the latter greatest in quantity. All but a small proportion of the raw cotton imported into the country comes by way of Liverpool, where the annual value of this import always exceeds £30,000,000, and is sometimes very much higher. The town is irregularly laid out, but contains a few fine streets and some magnificent public buildings, conspicuous among which are St. George's Hall, a beautiful building in the Greek style, the Exchange, the town-hall, the free public library and museum, the Picton reading-room, and the art gallery.

Manchester (population by census of 1881, without the adjoining borough of Salford 342,000, with Salford 518,000) is the most important of the numerous large towns in Lancashire and the neighbouring part of Cheshire (Oldham, 111,000; Bolton, Preston, Blackburn, Stockport, &c.) which are almost entirely dependent directly or indirectly on the cotton manufacture. In this branch of manufacture it has taken so decided a lead, that not only in this country, but throughout the civilized and a great part of the uncivilized world, the name of the town and its goods has become a household word. The appearance of the town, formerly wholly unattractive, has been greatly improved of late years. Handsome streets have in some parts taken the place of old rookeries, and the town can now boast of some of the finest buildings in the kingdom, such as the

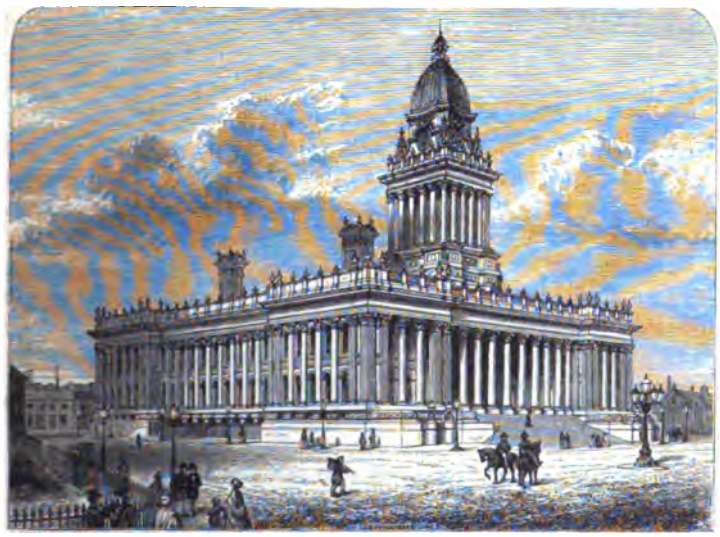


MANCHESTER.—Piccadilly with the Royal Infirmary.

new townhall, the exchange, and the assize courts. Manchester is an ancient town, dating at least from the Roman period, when it was known as Mancunium, and its manufactures were known as early as 1352.

Birmingham (population in 1881, 401,000) is the principal town in the midland counties, and the principal seat of nearly all kinds of hardware manufactures, its name (especially, perhaps, in the popular form of Brummagem) being as intimately associated with these as Manchester is with cotton goods. It is supposed originally to have been a small Roman station on one of the great Roman roads called Icknield Street, and it is known to have existed at least as early as 872, in the reign of Alfred the Great. Leeds (in 1881, 309,000) has been for centuries the chief seat of the woollen manufacture, in which most of the other large towns of Yorkshire (Bradford, 183,000; Huddersfield, Halifax, Wakefield, Dewsbury, &c.) are also engaged. Like Birmingham and Manchester, Leeds is an old city, having a history extending over a period of more than 1200 years. It is mentioned under the name

of *Loid* or *Loidis* by the Venerable Bede in the beginning of the seventh century. Sheffield, which is pleasantly situated on several acclivities in a natural amphitheatre, inclosed on all sides except towards the north-east by wooded hills, is the chief seat of the manufacture of all kinds of cutlery, and also manufactures armour-plates, rails, springs, wheels, tyres, buffers, and a number of other articles in iron and steel; and steel itself is made there in vast quantities. The population of Sheffield at the census of 1881 was 284,000. Bristol, the principal port of import after Liverpool on the west side of England, is situated not far from the arm of the sea which bears its name, at the confluence of the Avon and the Frome, and is built partly on a number of eminences



LEEDS.—The Townhall.

partly on the low grounds at their base. Its suburbs Clifton, Redland, and Cotham are in the midst of charming scenery studded with mansions and villas. The total population in 1881 was 207,000. Nottingham, the chief seat of the lace and hosiery industries, had at the census of 1871 a population of only 87,000, but its boundaries having been extended in 1877, it had at the census of 1881 a population of 187,000. Hull (population 154,000), on the Humber, is the chief port after London on the east coast of Great Britain, and the third port in the United Kingdom in respect of the value of its imports from foreign countries, and exports of British produce and manufactures. Newcastle-on-Tyne (population 145,000) is the centre of the Northumbrian coal-basin, and is famous for its export of coal, in which, however, it has recently been outstripped by Cardiff in Wales. It has also large manufactures of iron castings, machinery, ordnance, chemicals, &c. No more than a mention can be spared for a few of the other chief towns of England. Portsmouth (128,000) and Plymouth (75,000) are the chief stations of the British navy. Sunderland (116,000) is an important

seat of foreign trade. Brighton (108,000) owes its prosperity entirely to the fact of its being a fashionable watering-place. Leicester (122,000) and Norwich (88,000) are seats of the worsted manufacture, the former especially of hosiery. At Wolverhampton (78,000) in Staffordshire and Merthyr Tydvil (49,000) in Glamorganshire mining and the smelting of iron are largely carried on, and Swansea (64,000) in Glamorganshire is the principal seat of the smelting of copper. Southampton (60,000) is celebrated as a steam-packet station throughout the world.

HISTORICAL SKETCH.—Under the Romans South Britain at first formed only a single province. Severus in the beginning of the third century A.D. divided it into two, a northern and a southern, the former called Britannia Superior, the latter Britannia Inferior. Roman Britain then included only the portion of the island lying south of the Tyne, from the north of which to the Solway a stone wall was built by Severus a short distance north of a rampart previously built by Hadrian. In the time of Diocletian at the end of the third century four provinces were formed in Britain: Britannia Prima, the portion south of the Thames; Britannia Secunda, the portion west of the Severn and the Dee; Flavia Cæsariensis, extending from the Thames to the Humber; and Maxima Cæsariensis, lying between the Humber and the wall of Severus. A little more than a century later the Romans withdrew from Britain, and in the middle of the fifth century Britain was invaded and settled by Teutonic tribes (Angles or English, Saxons, and Jutes), who formed a number of separate kingdoms extending from the English Channel to the Firth of Forth, but excluding Cornwall, Wales, and Cumbria (the western tract between the Mersey and the Clyde), all of which remained in the occupation of the Britons. The chief of the Anglo-Saxon kingdoms, as they are usually called, were Wessex south of the Thames, Mercia occupying the midland counties, Anglia in Norfolk and Suffolk, and Northumbria stretching from the Humber to the Forth. Sometimes one of these kingdoms was the most powerful, sometimes another. From 827 to about 870 the king of Wessex held sway directly or indirectly over the whole country except what remained in the hands of the Britons, but in the latter part of the ninth century all the north and east of England was overrun by Danes, who, when peace was concluded with them, remained masters of that part of the country subject to the English kings of Wessex. The greater part of the following century was much disturbed, and the extent of the authority exercised by the English king depended on his own personal qualities. In 1016 a Danish conquest took place, and in 1017 England was united under the Danish king, Canute. Meantime Southern Cumbria had submitted to the English in 924, and Cornwall a few years later; and the northern part of Northumberland, if not previously granted to the kings of Scotland, was finally secured to that country by a Scottish victory in 1018. England thus had in the time of Canute nearly its present limits; and, except for a short interval after the death of that king, it was never again divided. Early in the tenth century Athelstane exacted tribute from the princes of Wales, and on several subsequent occasions the princes of Wales did homage to the kings of England; but the authority of England was only nominal in the principality till its conquest by Edward I. in 1283.

SCOTLAND.

Scotland, the northern division of the island of Great Britain, is separated from England on the south-east by the Tweed, south-west by the Solway Firth, and south partly by the Cheviot Hills and partly by an indefinite moorland tract known anciently by the name of the Debatable Land. The greatest length from north-north-east to south-south-west between Dunnet Head and the Mull of Galloway is 287 miles. The breadth varies exceedingly. Measured on the parallel 57° the breadth is 127 miles. Between Alloa on the Forth and Dumbarton on the Clyde the width is diminished to 32 miles; and farther north, where a kind of peninsula is formed by the Dornoch Firth on the east and Loch Broom on the west, it does not exceed 26 miles. On the north there are two large groups of islands, the Orkneys and Shetlands, of magnitude

Skye, from Raasay.

sufficient to form a separate county; while on the west a series of groups, known by the names of the Hebrides and Western Isles, stretch almost uninterruptedly from north to south, at a short distance from the coast, and form no insignificant portion of the area of the country. The largest of them are Lewis and Harris (forming one island), North Uist, South Uist, Skye, Mull, Jura, and Islay. Lewis, the northern part of the largest of the Hebrides, belongs to the county of Ross; Harris, the southern portion, together with the remainder of the Outer Hebrides, as well as Skye and the adjacent islands, belong to Inverness; while Mull, Jura, and Islay with the adjacent islands are included in Argyleshire. In the south-west, the islands of Arran and Bute have been deemed of sufficient importance to be formed into a separate county, under the name of the latter.

DIVISIONS.—The name, area, and population of the different counties or shires into which Scotland is divided, are exhibited in the following table:—

COUNTIES.	Area in sq. m.	Pop. April 4, 1881.	Pop. per sq. m.	COUNTIES.	Area in sq. m.	Pop. April 4, 1881.	Pop. per sq. m.
Aberdeen,	1,970	267,963	136	Kirkcudbright,	954	42,126	44
Argyle,	3,255	76,440	23	Lanark,	889	904,405	1017
Ayr,	1,149	217,504	189	Linlithgow,	127	43,198	340
Banff,	686	62,731	91	Nairn,	215	10,454	48
Berwick,	464	35,383	76	Orkney and Shetland,	840	18,171 12,056	36
Bute,	225	17,666	78				
Caithness,	712	38,845	54	Peebles,	356	13,819	38
Clackmannan,	50	25,677	513	Perth,	2,601	128,985	49
Dumbarton,	270	75,327	279	Renfrew,	254	262,981	1036
Dumfries,	1,103	76,124	69	Ross & Cromarty,	3,150	78,539	25
Edinburgh,	367	388,977	1060	Roxburgh,	670	53,445	79
Elgin or Moray,	531	43,760	82	Selkirk,	260	25,562	98
Fife,	513	171,960	335	Stirling,	467	112,437	241
Forfar or Angus,	890	266,374	299	Sutherland,	1,886	23,366	12
Haddington,	280	38,472	137	Wigton or Wigtown,	512	38,602	75
Inverness,	4,255	90,414	21				
Kincardine,	388	34,460	89				
Kinross,	78	6,699	86	Total,	30,367	3,734,441	123

PHYSICAL FEATURES.—The coasts of Scotland, for the most part bold and rocky, and much indented, especially on the west, have a total length of 5140 miles. The surface of the country in its general appearance contrasts strikingly

Red Head, Angus, east coast.

with England, possessing few of the long, open valleys and wide undulating plains for which the latter is distinguished. For convenience of description the country may be divided into three distinct regions, a southern, central, and northern. The **southern region**, commencing on the frontiers of England, stretches across the

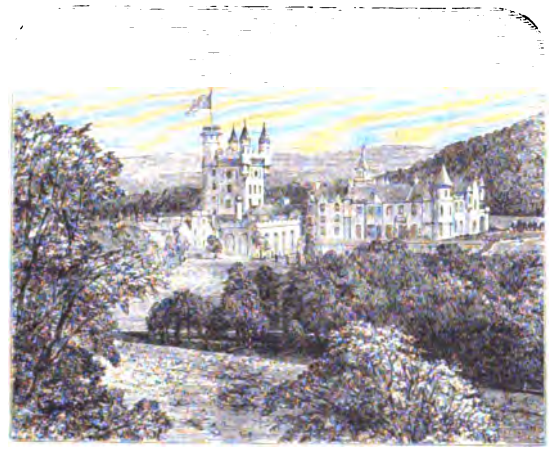
island, and then north to the Lammermoor and Pentland Hills, so as to include the whole of the counties of Wigtown, Kirkcudbright, Dumfries, Roxburgh, Berwick, Selkirk, and Peebles, small parts of the East and Mid Lothians, and large parts of the south of Lanarkshire and the south of Ayrshire. Thus defined, it is essentially a mountainous region, presenting both in isolated masses and continuous ranges a great number of summits which are more than 2000 feet, though none exceed 3000 feet, above the sea. Most of the mountains have flat or rounded summits, and slope gradually, without breaking into precipices. They are thus deficient in some of the grander features of mountain scenery, but are in general clad with a richer verdure, and give origin to a great number of beautiful pastoral valleys. The **central region**, commencing where the south terminates, extends north to the foot of the Grampians, and there has its boundary nearly defined by a straight line drawn in a north-east direction from the mouth of the Clyde to Stonehaven on the east coast. Though the least of the three regions, occupying not more than a sixth of the whole surface, it is by far the wealthiest, and contains probably three-fifths of the population. This superiority it owes partly to the fertility of its soil, and more to its mineral treasures. Though, considered as a whole, it is much less elevated than the general surface of Scotland, it has none of the monotony usual in flat countries. The **northern region**, consisting of the whole of the island situated north and west of the line which we have supposed to be drawn from the mouth of the Clyde to Stonehaven, is by far the largest of the three, and is remarkable for the number and elevation of the mountain ranges by which it is traversed. In the south the Grampians rise in majesty, and present an apparently impenetrable barrier, yet forming not so much a chain, as a system of mountains, in which the loftiest summits are so irregularly grouped that it seems almost impossible to fix on any particular range as the principal axis. Assuming that it commences on the north-east coast of Kincardine, it first stretches in a west-south-west direction across that county, and then forms the boundary between Aberdeen on the north and Forfar and Perth on the south. On reaching the south-west extremity of Aberdeen it is joined by another range coming from the north-east, and connecting it with a remarkable cluster of summits at the meeting place of the counties of Aberdeen, Banff, and Inverness. On being joined by this range the principal chain adopts its direction, and stretches south-west between Perth and Inverness, till it reaches a point common to these counties and that of Argyle. Before reaching this point the Grampians widen out both on the north and south, sending branches in the former direction into Inverness, and in the latter over the whole breadth of Perthshire, and even beyond it into Stirlingshire, where they appear to find an appropriate termination in Benlomond. A middle branch, which, from following the original direction, is perhaps entitled to be considered as the principal chain, enters Argyleshire, and is continued between Lochs Awe and Etive towards the coast. Even here it can scarcely be said to terminate, as its ramifications obviously extend into the adjacent islands of Mull on the right, and Jura and Islay on the left. Some hold Strathspey to be the northern limit of the Grampians, and of course consider

the Monagh Lea Mountains, which rise immediately beyond the strath, and are parallel to it, as a distinct chain. A better arrangement considers the Monagh Lea as only one of the parallel terraces of the Grampians, and finds a much better boundary in the valley of Glenmore and its remarkable chain of lakes. The range of the Grampians is the loftiest mountain chain in Great Britain, and counts a number of summits exceeding 4000 feet. The culminating point is Ben Nevis, 4406 feet, in the west of Inverness-shire, and Ben Macdhui rises to within 110 feet of it. This latter mountain forms one of the remarkable cluster of mountains already referred to as meeting on the borders of Aberdeen, Banff, and Inverness. The others connected with it are the celebrated

Culloden Moor, looking towards the Beauly Loch.

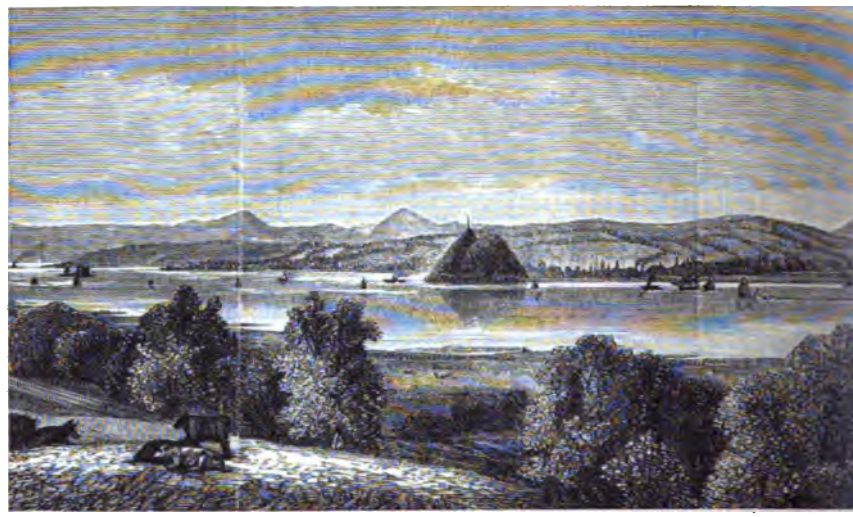
Cairngorm, Cairntoul, and Ben Avon, the lowest of which, Ben Avon, is not far short of 4000 feet high. On the north and west shores of the lakes of Glenmore another series of mountain chains begin to rise, and are continued with little interruption to the north coast across the counties of Inverness, Ross, and Sutherland. The more remarkable of the summits are Ben Wyvis, Ross-shire, and Ben Derag and Ben More in Sutherlandshire, all between 3000 and 4000 feet high, the highest, Ben Wyvis, having a height of 3722 feet. From the eastern frontiers of Sutherland the surface slopes gradually downwards through Caithness till it presents the appearance of an undulating plain, sometimes fertile, but for the most part covered with stunted heath. The same lowering of the surface towards the east coast is exhibited also on the east of Sutherland, and still more along the shores of the Moray Firth and of Aberdeen, making these districts, though locally within the Highlands, truly part of the Lowlands of Scotland. Culloden Moor, a heath belonging to one of these lowland tracts on the shores of the Beauly Firth, one of the inner recesses of the Moray Firth, is famous as the battlefield on which the Pretender, Prince Charles Edward, was overthrown by the Duke of Cumberland in 1746.

RIVERS AND LAKES.—Both rivers and lakes are numerous in Scotland, but, in consequence of the configuration of the surface, they are not very equally distributed, the western part containing almost all the lakes, and the eastern, with a single exception, all the more important rivers. Beginning with the latter, and proceeding from the south-east extremity northwards, the first large river that presents itself is the Tweed, which belongs in the lower and more valuable part of its course to England as well as Scotland. It is of little importance as a navigable river, but is celebrated for its salmon-fisheries. Its length, including numerous windings, exceeds 100 miles, and the area of its basin is 1870 square miles. The next river is the Forth, which has its sources in Benlomond, and possesses comparatively little importance till it reaches Stirling, where it commences the beautiful windings for which it is celebrated. From Alloa to its mouth it is navigable for vessels of the largest class. Its length, including windings, if conceived to terminate at Kincardine, is about 100 miles, but when its estuary is added, is increased to at least 140 miles. The area of its basin, including that of its firth, is estimated at 1400 square miles. The Tay, owing not so much to the depth and width of its channel, as to the rapidity of its current, and the supplies which it is constantly receiving from cloudy mountain regions and melting snows, surpasses all the rivers of Great Britain in respect of the quantity of water which it discharges into the sea. At Perth it becomes navigable, with the favour of the tide, for vessels of 100 tons, but owing partly to the sands which encumber its mouth, and from their shifting nature greatly increase the difficulties of navigation, its navigable importance is almost confined to Dundee. Its salmon-fisheries are the most valuable in Great Britain. Its whole length, from its source to the eastern extremity of its firth at Button Ness, is about 110 miles, and its basin has an area of above 2250 miles. To the north of the Tay a number of small streams reach the sea directly, and thus have independent basins; but the only one deserving notice is the South Esk, which has the thriving town of Montrose at its mouth. The next river of importance is the Dee, which originates in a number of torrents sent down from the loftiest summits of the Grampians in the west of Aberdeenshire, and, flowing almost due east through the beautiful valley lying between the ranges that form the eastern fork of the Grampians, falls into the sea at the town of New Aberdeen. On this river stands



Balmoral Castle.

Balmoral Castle, the Highland residence of the queen, surrounded by the most magnificent mountain scenery. A short distance to the north of the Dee the Don also has its mouth. The chief importance of both rivers is derived from their salmon-fisheries, the granite-quarries on their banks, and the traffic occasioned by these and the vicinity of Aberdeen. The length of the Dee is about 80 miles, and the area of its basin 765 square miles; those of the Don are respectively 60 miles and 530 square miles. Hitherto all the rivers have had eastern courses, but at Kinnaird's Head the coast makes a sudden turn, and continuing almost due west to the Moray Firth gives the rivers which fall into it more or less of a northern direction. The principal of these rivers are the Dovern or Deveron, the Spey, and the Findhorn. The Spey is



The Clyde, with Dumbarton Castle, as viewed from near Finlayston.

remarkable for its rapidity, in which respect it surpasses all other British rivers. The salmon-fisheries in this river are valuable, and the strath through which it flows is one of the best wooded districts in Scotland. The northern and western coasts are equally destitute of rivers of importance, and, therefore, without stopping to notice any of them, we proceed at once to the Clyde. In the upper part of its course this river dashes along with the impetuosity of a mountain torrent, and in the vicinity of the town of Lanark forms a series of magnificent falls, but in the lower part it winds along in a gradually widening valley till it reaches Glasgow, and at the very point where it first becomes navigable is covered with ships. Its length from its source to Dumbarton, at which it is conceived to terminate, is about 73 miles; but when continued to Greenock, as it certainly ought, is 80 miles. The area of its basin within the same extended limits is 1580 square miles. In the Solway Firth, which may be considered the south coast of Scotland, are the mouths of the only three of its rivers in which a southern direction predominates; they are the Dee,

Nith, and Annan. The first rising among the mountains on the northern frontiers of Kirkcudbrightshire, flows across that county, dividing it into two nearly equal parts, and becoming navigable about 2 miles above the town of Kirkcudbright, falls about 6 miles below it into the Solway, after forming a broad estuary. The Nith has both a longer course and a much larger volume of water. Its channel is much obstructed by sandbanks, and, when the tide begins to flow into it, presents, more especially at spring-tides, and during strong gales from the west, the rather unusual phenomenon of a *bore*. The Annan has its course nearly due south, and falls into the Solway about two miles below the

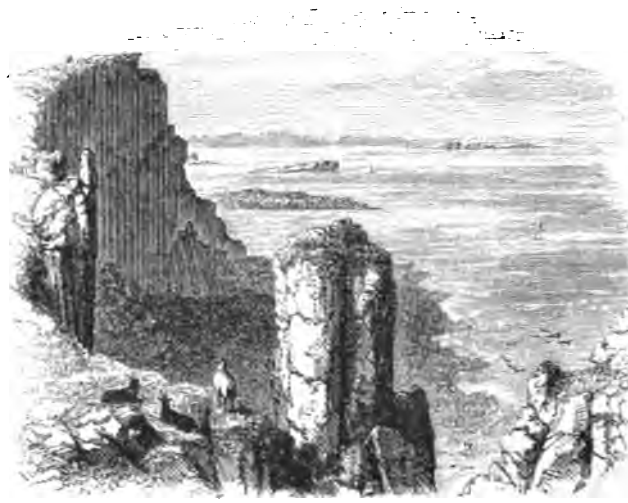
Loch Maree, Ross-shire.

town of Annan. Both the rivers of the Solway and its coasts are much visited by salmon, the fisheries of which are valuable.

The numerous **lakes** of Scotland, situated for the most part in Highland glens, are generally characterized by a length altogether disproportioned to their breadth, abound with fish, and present scenery distinguished for grandeur and varied beauty. The most remarkable are Loch Lomond, the largest and finest in Great Britain, situated between the counties of Stirling and Dumbarton, but chiefly in the latter, 22 miles in length, and 7 miles in maximum breadth; Loch Awe, in Argyleshire, 23 miles in length, 2½ miles in maximum breadth, and 30 square miles in area; Lochs Ness, Oich, and Lochy, in Inverness-shire, forming the remarkable chain of which advantage has been taken to form the Caledonian Canal; Lochs Shin, in Sutherland; Maree, in Ross-shire; Arkaig, Morar, and Laggan, in Inverness-shire; Ericht, chiefly in Inverness, though partly in Perth; and Tay, Earn, Rannoch, Katrine, Achray, Venachar, and Lubnaig, all in Perthshire. Among lowland lakes, the largest and most celebrated is Loch Leven,

in Kinross-shire, which, however, is far surpassed in beauty by some of the lochs of Kirkcudbright.

GEOLOGY.—To the north of a line drawn from the Firth of Clyde on the west, to Stonehaven on the east coast, the whole country is composed of primary rocks. Gneiss, and mica slate, with numerous outbursts of granite, form lofty mountain chains, whose lower slopes are usually covered with beds of conglomerate and old red sandstone. These mountains, from the nature of the materials of which they are composed, frequently assume the form of peaks and frowning precipices, which, as they descend, instead of terminating at the general level of the base, are continued downwards, and become the romantic barriers of deep extensive lakes, presenting scenes in which sublimity and beauty strangely intermingle. Trap is not often seen on the mainland, but the large islands of Skye and Mull are almost wholly occupied with it, and the sea-cliffs of these two, as well as other islands belonging to the Hebrides, exhibit basaltic trap in columnar terraces. The southernmost range within the line already mentioned is that of the Ochils, which are much less elevated than the Grampians, and exhibit scenery of a much tamer description. They consist chiefly of porphyry and amygdaloid, in which numerous nodules of agate and carnelian are found. Instead of towering up in sterile peaks, they are generally rounded, and clothed to their summits with verdant or heathy pastures. On their south slopes, a new geological formation appears. The carboniferous system, at first with its strata almost turned on edge, and thrown into confusion by contact with masses and veins of trap, soon becomes fully developed, and stretches, with occasional interruptions, from the east to the west coast, over the basins both of the Forth and Clyde. The mineral treasures of this district make it one of the most important in Great Britain. To the south, immediately beyond the limits of this coal-field, the country again assumes an alpine character, and mountains, which, for the most part, are composed of rocks of graywacke and coarse slate, rise with heights varying from 2000 to 3000 feet above the level of the sea. A considerable part of this district is occupied by the Lead Hills, so called from the rich veins



Basaltic Cliffs on the North-east Coast of Skye.

of lead by which its strata of graywacke are intersected. In earlier times, their alluvial covering embedded a more precious metal, and the mere washing of the soil is said to have yielded gold to the value of £100,000. Still further to the south several large masses of granite occur. Coal also again appears, and forms two minor coal-fields, one round Sanquhar in the north-west of Dumfriesshire, and the other at Canonbie on the southern borders of the same county. Towards the south-east the most conspicuous feature is formed by the Cheviot Hills, a porphyritic range, which once formed part of the boundary between two independent kingdoms, and sends its ramifications into both.

Edinburgh Castle, from the Grassmarket.

CHIEF TOWNS.—According to the estimates of population for 1879 Scotland then possessed four towns, Glasgow, Edinburgh, Dundee, and Aberdeen, each of which contained upwards of 100,000 inhabitants. Of these four, Edinburgh, though only the second in size, is historically the most important, as having been the capital when Scotland was still an independent kingdom, and as still possessing some of the prerogatives of a capital, the most important of which is its being the seat of the supreme courts of law for Scotland. Its population at the census of 1881 was 228,000. It lies about two miles from the south shore of the Firth of Forth, and is celebrated for the beauty of its situation, being picturesquely built partly on the crest of three parallel ridges stretching from west to east, partly on the low grounds lying between and beyond them. In consequence of the nature of the site Edinburgh presents the singular peculiarity of having certain streets connecting the ridges, built on the level of the roofs of the houses belonging to the streets occupying the hollows between the ridges. The central ridge terminates on the west in a magnificent rock, 450 feet high, precipitous on all sides except the east, and crowned by the ancient castle. Edinburgh is not a manufacturing city, but besides being, as already mentioned, the seat of the supreme courts of law, is celebrated far and wide as an educational centre. Its university has the largest attendance of students of the four universities of Scotland, and

has long been famous for its medical school, which attracts students from all parts of the empire, as well as from foreign countries all over the world. Conterminous with the city of Edinburgh is its port, Leith (population 61,000), which ranks next after Glasgow and Greenock among the ports of Scotland, and carries on a large foreign trade chiefly in imports.

While Edinburgh deserves priority on account of its historical importance, Glasgow stands first among the towns of Scotland in respect of population, and as a seat of industry and commerce. The population within the municipal boundaries in 1881 was 512,000, but when the suburbs which lie immediately

The Trongate and Old Exchange, Glasgow.

outside the boundaries, and form along with the city one centre of population, are counted in, the total population is 704,000. In spite of the importance in the aggregate of the manufacturing industries of Glasgow none of these can be singled out as a staple, but nearly every important branch of manufacture carried on in any part of the kingdom is pursued here on a large scale. If there is any industry in which Glasgow stands pre-eminent it is that of ship-building, but the ship-building yards that have made the Clyde famous in every part of the world are not confined to Glasgow, but are found in various parts of the river. As a seat of marine commerce Glasgow may be said to be entirely the creation of the inhabitants themselves. At a not very remote period the Clyde was fordable at and below the present harbour of Glasgow. Not till 1770 was an act procured for deepening the river by dredging, and since then the opening up of the river highway has advanced without interruption, so that the quays of Glasgow are now accessible to vessels of the largest size. Great improvement has been effected of

late years in the older part of the town, where, under the improvement act passed by parliament for the city itself at the instance of the corporation, many old rookeries crowded together in narrow lanes, the haunts of vice and disease, have been taken down and replaced by wide streets. It is no doubt chiefly due to this that the death-rate of Glasgow has declined from about 30 to below 25 per thousand per annum. Glasgow possesses an ancient cathedral, the crypt of which is celebrated as perhaps the most beautiful and perfect in Britain. It is also the seat of one of the four Scottish universities.

Dundee, which ranks third among the towns of Scotland in respect of population, having at the census of 1881 a population of 142,000, is finely situated on the north bank of the Firth of Tay. It is at least as old as the reign of William the Lion (1165–1214), who erected it into a royal burgh. It owes its prosperity to its manufactures, particularly of the coarser descriptions of linen, duck, and canvas, for which it has long been celebrated. About 1830 a new raw material of Indian origin, jute, was introduced, and it has since given rise to a very large branch of industry, of which Dundee has almost the monopoly in the United Kingdom. The shipping accommodation is of the best description, and the trade is extensive. For a short period Dundee was connected with the opposite shore of the Firth of Tay by means of a railway bridge, but this connection was destroyed in December, 1879, in a violent storm, by which part of the bridge was blown down.

Aberdeen has advanced into the list of towns with a population above 100,000 since the census of 1871. At that date its population was a little over 88,000; at the census of 1881 it amounted to 105,000. It stands at the mouth of the Dee, but part of the parliamentary burgh stands near the mouth of the Don, and has a separate municipal government under the name of Old Aberdeen. The populations above given are of the whole parliamentary burgh. Aberdeen on the Dee was made a royal burgh in the reign of David I., probably about the year 1130. The manufactures, which include woollen, linen, and cotton goods, combs, chemicals, &c., are considerable, but there is no staple. The harbour, which opens into the mouth of the Dee, is spacious, and has its entrance protected by two piers running out into the German Ocean. The foreign commerce is chiefly with North and South America, the East Indies, the Mediterranean, and the Baltic. Old Aberdeen possesses a cathedral dedicated to St. Machar, and is the seat of King's College, one of the two colleges of the University of Aberdeen, the other, Marischal College, being in New Aberdeen. Both Old and New Aberdeen are chiefly built of gray granite, which is largely quarried in the neighbourhood, and in the town itself is extensively prepared for a variety of useful and ornamental purposes.

Among the other towns of Scotland the most important is Greenock, on the south shore of the Firth of Clyde, a town with a population of 69,000 at the census of 1881. It is the chief seat of the sugar-refining industry in Scotland (raw sugar forming more than three-fourths in value of the imports), and also carries on shipbuilding, engineering, and spinning on a large scale. Its shipping trade is large, especially in the case of imports, many ships discharging

here which afterwards ascend to Glasgow for cargoes, on which account the tonnage cleared from Greenock is only about half that which is entered at the port. In the summer season as many as fifty steamers laden with passengers for the numerous watering-places on the Clyde either start from or call at the piers of Greenock. Paisley, on the White Cart, about seven miles from Glasgow, is the next town in size, and has after remaining nearly stationary in respect of population between the censuses of 1861 and 1871, again advanced considerably between those of 1871 and 1881. In 1871 its population was 48,240; in 1881, 56,000. Early in the last century it became noted for its manufactures, chiefly of chequered linen cloth, to which branch of industry were afterwards added the weaving of linen and silk gauze, and the weaving of shawls chiefly in imitation of those of India. At present the most important industry in the town is the spinning of cotton thread. Of the other manufacturing towns of Scotland the only one that need be mentioned is Kilmarnock (25,000), on a small stream of the same name in North Ayrshire. Its staple manufacture is carpets. Perth (29,000), on the Tay, though it carries on various branches of manufacture, is more celebrated on account of its historical importance. It is an ancient city, dating, it is said, from the time of Agricola, and till the death of James I., in 1437, was the capital of Scotland. Stirling (16,000), on the Forth, in the midst of one of the richest agricultural districts in Scotland, is another town of historical celebrity. Its ancient castle, crowning a high rock bearing a striking resemblance to that on which Edinburgh Castle is situated, was often used as a residence by the Scottish sovereigns. Inverness (17,000) is another ancient royal burgh, and still possesses a good deal of importance as the capital of the Northern Highlands. St. Andrews (6500), on the east coast of Fifeshire, was in former times the ecclesiastical capital of Scotland, and is still the seat of the oldest of the Scottish universities, which was founded here in 1411.

HISTORICAL SKETCH.—In the time of the Romans North Britain, like South Britain, was entirely occupied by Celtic tribes, all of which remained for the most part independent. More than once the Roman rule was temporarily extended as far north as the Forth and Clyde, and in the reign of the emperor Valentinian I. (364–375) this portion of territory was organized as a Roman province under the name of Valentia, but the duration of this organization was very short. On the foundation of the English kingdom of Northumbria in the middle of the sixth century, south-eastern Scotland as far as the Forth was included in it. At that time south-western Scotland, from the Clyde southwards, formed part of the Celtic kingdom of Cumbria, which extended sometimes as far as the Dee. The rest of Scotland was divided between the Picts and Scots, both probably Celtic races, the former occupying the eastern territory, and the latter, originally settlers from Ireland, occupying the western. About the middle of the eighth century these two territories were united under a Pictish king, and about a century later (in 843) they were again (and this time finally) united under the Scottish king Kenneth, the son of Alpin. In the reign of another Kenneth, about a century later, the dominion of the Scottish kings was extended nearly to the boundaries it afterwards preserved, Strathclyde, the northern part of Cumbria, being then

acquired by conquest, and the district of Lothian ceded to Kenneth by the English king Edgar. In the beginning of the eleventh century, Kenneth's son, Malcolm II., received from the Earl of Northumberland the territories of Merse and Teviotdale; but the boundary between England and Scotland varied from time to time for a long period after this, and it was not till about 1240 that a border line was laid down, which was never afterwards materially altered. The Hebrides were acquired from Norway in 1266, and the Orkney and Shetland Islands from Denmark in 1369.

IRELAND.

Ireland, in Erse, Erin, the more western and less important of the two principal islands of which the United Kingdom is composed, is separated from Great Britain on the east by the Irish Sea, which, near its centre, attains a

Clew Bay, Co. Mayo, West Coast.

width of 130 miles, but narrows between Holyhead and Howth Head to 60 miles; and between the Mull of Kintyre, in Scotland, and the opposite coast at Fair Head, to about 13 miles; and surrounded on all other sides by the North Atlantic Ocean. Measured diagonally, the greatest length, from Mizen Head, in the south-west, to Fair Head, in the north-east, is 300 miles; and the greatest breadth, from Carnsore Point, in the south-east, to Benwee Head, in the north-west, is 212 miles; measured on a meridian, and on a parallel of latitude, the greatest length and breadth, respectively, are only 230 miles and 180 miles; the central breadth, nearly between the bays of Dublin and Galway, is 110 miles. The area is 31,762 square miles. Ireland is divided into the four provinces of Leinster, Ulster, Munster, and Connaught, each of which is subdivided into

counties, of which there are 32 in all. These, with their areas and populations, are given in the following table:—

PROVINCES AND COUNTIES.	Area in sq. m.	Pop. April 4, 1881.	Pop. per sq. m.	PROVINCES AND COUNTIES.	Area in sq. m.	Pop. April 4, 1881.	Pop. per sq. m.
Leinster:—	**7,630**	**1,279,190**	**168**	Waterford,	721	113,235	157
Carlow,	346	46,508	134	**Ulster:—**	**8,567**	**1,739,542**	**203**
Dublin,	355	418,152	1,178	Antrim,	1,191	423,171	355
Kildare,	654	76,102	116	Armagh,	513	162,823	315
Kilkenny,	796	99,064	124	Cavan,	746	129,008	173
King's County,	772	72,668	94	Donegal,	1,871	205,443	110
Longford,	421	60,790	144	Down,	957	269,927	282
Louth,	316	78,228	247	Fermanagh,	715	84,633	118
Meath,	906	86,301	95	Londonderry,	816	164,714	202
Queen's County,	664	72,598	109	Monaghan,	500	102,590	205
Westmeath,	708	71,513	101	Tyrone,	1,258	197,233	157
Wexford,	901	123,587	137	**Connaught:—**	**6,863**	**817,197**	**119**
Wicklow,	781	73,679	94	Galway,	2,447	241,662	99
Munster:—	**9,481**	**1,323,910**	**139**	Leitrim,	613	89,795	146
Clare,	1,294	141,210	109	Mayo,	2,131	243,030	114
Cork,	2,890	492,810	170	Roscommon,	950	131,755	139
Kerry,	1,853	200,448	108	Sligo,	722	110,955	153
Limerick,	1,064	177,203	166				
Tipperary,	1,659	199,004	120	Total,	**32,531**	**5,159,839**	**158**

PHYSICAL FEATURES.—The coast, forming a line of 2895 miles, is, in general, very bold and rugged. The most continuous portion is the east, where the only remarkable indentations are the Loughs of Belfast and Strangford, and the Bays of Dundrum, Dundalk, and Dublin. In all other directions, but more especially in the north-west, west, and south-west, the indentations follow each other in almost uninterrupted succession, and frequently cut so deep into the land as to give it a very broken and rugged appearance. In point of extent, depth of water, and shelter, many of these furnish natural havens which cannot be surpassed, fourteen of them affording accommodation for the largest ships. The rocky shores which line the most of these bays are formed by the abrupt terminations of mountain ridges, which, instead of stretching in continuous chains across the interior, rise rather in vast isolated masses at a short distance from the coast, and usually subside rapidly as they recede from it. Indeed, almost the only inland range worthy of the name is that of the Devil's Bit, and the Sliebhbloom Mountains, which stretch in an irregular curve of about 30 miles, from south-west to north-east, through the north-east of Munster and west of Leinster, and, in the Keeper, attain the height of 2265 feet. Most of the other masses attain their greatest elevation towards the exterior of the island, and thus give the interior the form of a vast plain, girdled all round by lofty mountain barriers. The most important of these which present themselves, in proceeding as before from the north, westward, are the mountains of Donegal, culminating in Mount Erigal, 2462 feet; those of Sligo, culminating in Truskmore; those of Mayo, culminating in Nephin and Muilrea; those of Galway, culminating in Twelve Pins; those of Kerry, culminating in Brandon and Carn Tual, the latter the loftiest summit of all Ireland, reaching the height of 3404 feet; those of Waterford, culminating in Mona Vallagh; those of Wicklow, culminating in

Lungaquilla; those of Dublin, culminating in Kippare; those of Down, culminating in Sliebhdonard; and those of Antrim, which are less remarkable for their height than the magnificence with which they terminate in the Giant's Causeway. Though the barrier thus formed presents numerous openings, and the plain inclosed by it is by no means a monotonous flat, it is not difficult to understand how a surface so formed is ill adapted for giving a free course to the water which collects upon it, and accordingly contains extensive tracts of bog.

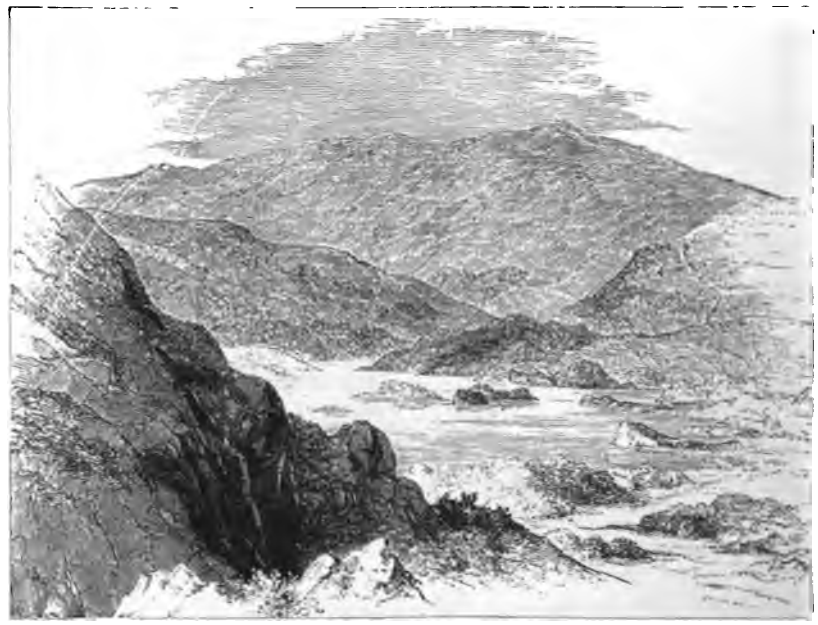
RIVERS AND LAKES.—Few countries of the same extent are so liberally supplied with rivers. They are not only numerous, but are equally distributed over the surface, so as to leave no district without sufficient means of water communication; and are, in general, admirably adapted for navigation, winding

Milford Mills, Barrow River, Co. Carlow.

along in deep and gentle currents, and not often much encumbered by rocks or other obstructions. The Shannon, the largest river of Ireland, if not of the United Kingdom, is navigable to its source, in Lough Allen; forming a navigable channel of 214 miles, continued through the very heart of the country; and though, of these, 144 miles are occasionally obstructed by shallows, over which only vessels of small burden can float, the remaining 70 miles, commencing at the town of Limerick, are safely navigated by vessels of 400 tons. The area of its basin is 6946 square miles. The other rivers of most importance are the Bandon, Lee, and Blackwater, almost confined within the limits of the county of Cork; the Suir and the Barrow, which, by the union of their streams, form the broad

estuary of Waterford harbour; the Slaney, which, at its mouth, expands into the large lagoon of Wexford Haven; the Liffey, which, from having the capital on its banks, is possessed of much more commercial importance than its mere magnitude could give it; the Boyne, the largest river which discharges itself on the east coast; and the Bann and the Foyle, which have their mouths at no great distance from each other on the north coast.

Besides the loughs or long narrow gulfs in immediate connection with the sea, to which reference has already been made, Ireland possesses a vast number of inland lakes, which, in some parts, lie so near each other as to form a continued series, easily available for purposes of navigation. Lough Neagh, in Ulster, is a large quadrangular expanse, 17 miles long by 10 miles broad, and is not only the largest lake of the United Kingdom, but ranks high among the secondary lakes of Europe. Its beauty, however, bears no proportion to its magnitude.



Upper Lake, Killarney.

Its shores are low and marshy; only two small and uninteresting islands are seen upon its bosom, and the surrounding scenery possesses no attractions. The only remarkable thing connected with it is the petrifying property of its waters. The other more important lakes are Lough Erne, which, when its basin is full, stretches in one continuous sheet of water for nearly 30 miles; but at other times becomes divided, near its centre, into an upper and a lower lake—each, particularly the latter, studded with numerous islands, many of them inhabited, and several of them so well wooded as to form rich and interesting scenery; Lough Corrib, about 24 miles long, and at the broadest 14 miles wide; and,

connected with Lough Corrib by a subterranean channel, Lough Mask, both so commodiously situated as to admit of an easy junction with each other and with the sea, at the town of Galway; Loughs Allen, Ree, and Derg—the first, as already observed, forming the proper commencement, and the other two, wide expansions of the Shannon; and Loughs Conn and Cullin, in the county of Mayo. Besides these, whose magnitude is their chief claim to notice, many others, of much smaller dimensions, are distributed over the island, and often compensate for their limited extent by the beauty and magnificence of their scenery. In this respect the lakes of Killarney are pre-eminent, and attract visitors from all parts of Europe.

GEOLOGY AND MINERALS.—Owing partly to the immense extent of deep bog which covers the surface of Ireland, and conceals the mineral deposits from the view, its geology is imperfectly known. Its peculiar features, however, consist in the vast masses of primary and metamorphic rocks which form its mountains, and the secondary formations spread over its interior. Basaltic rocks are almost entirely confined to the north-east, where they cover nearly the whole county of Antrim, and often form colonnades, of which the Giants' Causeway is a celebrated specimen. A few miles east of the Giants' Causeway is the insulated basaltic rock of Carrick-a-Rede, separated from the mainland by a chasm, across which a flying bridge of ropes about 60 feet in length is thrown during the salmon-fishing season for the use of the salmon fishers, who have a valuable station here. Granite has its largest development in the south-east, where it forms the great mass of the mountains of Wicklow, and stretches, in a broad belt, from north-north-east to south-south-west, through the counties of Wicklow and Carlow. It is also more sparingly developed in the west, along the shores of Galway Bay; in the north, in the county of Donegal, where it appears in three patches, the largest on the north-west coast; in a small patch on the north-east coast of Antrim, where it forms the well-known promontory of Fair Head; and in the east, where it occupies two considerable tracts, one wholly in

Carrick-a-Rede, North Coast of Antrim.

Down, and the other, of a very irregular shape, partly in Down and partly in Armagh, and conspicuously presented along both sides of Carlingford Bay. Of the primitive stratified rocks, the most largely developed are chlorite and mica schist; which, with primary limestone, hornblende, and other accompanying strata, cover the greater part of the north of Ireland, stretching without interruption over the greater part of the counties of Londonderry, Tyrone, and Donegal. The same strata form a long narrow belt in the county of Sligo, and spread out into great breadth on the coast of Mayo. They also occupy considerable tracts on the coasts both of Galway and Kerry, but appear to be altogether wanting in the interior, and on the south and west coasts, with the exception of a patch in the north-east, overlying the granite which terminates in Fair Head. Next in the order of superposition is the silurian system, the lower rocks of which form no inconsiderable portion of the whole island, covering almost the whole of counties Cavan and Monaghan, large parts of the south-west of counties Kerry and Cork, the far greater part of Wexford, and numerous isolated spots both on the coasts and in the interior. The old red sandstone, the formation next in order, has its largest continuous development in the county of Cork, but rises to the surface at numerous isolated spots, forming tracts of considerable extent in Waterford, Kilkenny, Tipperary, Clare, Galway, Mayo, and Tyrone. The rocks next in the series belong to the carboniferous system; at the bottom of which lies the mountain limestone, the most largely developed of all the rocks of Ireland. Its chief seat is in the centre of the island, where it forms a broad zone stretching continuously from the east to within a short distance of the west coast; from Louth and Dublin, through East Meath, West Meath, Kildare, King's County, Queen's County, Longford, Roscommon, Mayo, and Galway. The succession of the strata is nearly the same as in England, but the quality of the coal is generally of a very inferior description. One of the most valuable fields is that of Kilkenny, where the coal is found in seven workable beds in the form of anthracite; and, in the best seams, so free from adulteration that it contains from 94 to 96 per cent of pure carbon. The largest field is in the south-west, where it occupies an extensive tract in the counties of Clare, Limerick, Kerry, and Cork. It is worked to a considerable extent, particularly on the north bank of the Blackwater, but the greater part

The Fair Head, Antrim.

of the output is culm or dross, not well adapted for domestic use, and chiefly employed for malting and the burning of lime. The strata higher in the geological series than the coal are very partially developed in Ireland. Tracts of marl and new red sandstone occur in Tyrone and Armagh, and, at the south shore of Lough Neagh, branch off into narrow belts, inclosing part of the county of Antrim. On the east coast of the latter county strata still more recent appear, and beds of lias, greensand, and chalk are exposed on the cliffs above the shore. The occasional appearance of the same strata inland, in the bottom of the valleys, leaves no doubt that they occupy a large extent of space, though the immense masses of basalt which overlie them, in some places to the depth of more than 500 feet, conceal them from view. The nature of the coal of Ireland has already been referred to; and regarding other minerals it is sufficient to mention that the mountain limestone, which in England contains so many valuable mines of lead, appears to be here much less liberally supplied with that metal; that iron ore is obtained in small quantity chiefly in the county of Antrim; copper in the counties of Cork, Waterford, and Wicklow; and that salt of superior quality is found in large quantity at Duncrue near Carrickfergus and elsewhere.

AGRICULTURE.—In Ireland the condition of agriculture is very different from what it is in the sister island. The soil, indeed, offers every advantage to the farmer; for though there is in various parts a great extent of dismal moorland wastes, there remains after deducting these a vast area of arable surface, covered with a deep friable loam of remarkable richness. Seldom so light as to degenerate into sand, or so heavy as to contain an undue mixture of stubborn and impervious clay, the soils of Ireland possess that happy medium texture which at once facilitates the operations of husbandry, and ensures it an abundant return. "In the elements of natural fertility," says Mr. M'Combie, a Scotch authority on agriculture, "only the richer parts of England, and very exceptional parts of Scotland, approach to it." But in spite of these advantages there is perhaps no country in Europe where agriculture, considered as a system, has made less progress. The holdings, originally too small to be occupied by farmers of capital and enterprise, have been allowed to become almost infinitesimally subdivided, until they have been reduced to the smallest patches on the produce of which a family could manage to subsist. About 50 per cent of the total number of holdings in Ireland are under 15 acres in extent, and rather more than 72 per cent are under 30 acres. The practice of providing for the sons, and sometimes also for the daughters of a family, out of the father's holding, is probably chiefly to blame for this minute subdivision of holdings; and this practice is itself a consequence of the small scope afforded by other employments than agriculture in most parts of Ireland. The result of this prevalence of small holdings is that the holders are reduced to the necessity of raising as much as possible in each year for immediate use, without regard to the ultimate effect which their mode of farming must have upon the land they cultivate. Overcropping is thus an evil that prevails very widely, and is sometimes carried to such an extent that nine or ten crops of oats are taken in succession from the same field, without adequate means being taken to restore to the ground in the

form of manure the nourishment that each crop takes from it. According to the authority already quoted, "under the treatment the soil of Ireland receives, great part of that of Scotland would long ago have ceased to produce any crops at all —would have relapsed into sterility." It is, however, gratifying to observe that a steady diminution is now taking place in the number of small holdings. Since 1841 there has been a steady decline in the number of holdings under 15 acres. Between 1841 and 1861 the number of farms between 15 and 30 acres nearly doubled, and their number increased also between 1861 and 1871; but more recent statistics show that these holdings also have now begun to decrease, while there is a steady increase in the number of the larger holdings. For many years back there has been a pretty steady decrease in the whole extent of land under crops in Ireland, and the increase in the ratio of pasture-land to land under corn and green crops is greater here than in Great Britain, for in spite of the general decrease in the total extent of land under crops of all kinds, there is a very decided increase in the extent of land in meadow and clover. As might be expected from this circumstance, the rearing of live stock is the only branch of Irish agriculture that presents an encouraging aspect.

Much benefit is expected to accrue to Irish agriculture from the operation of the Irish Land Act of 1881, the main provisions of which are—one for granting to the tenants of agricultural holdings the right of selling their tenancy subject to certain regulations; one for the appointment of a court to which tenants of a present tenancy may apply from time to time to have a fair rent fixed, such tenants being those holding a tenancy at the time of the passing of the act and their successors in title; and one for the creation of a land commission with power (*a*) to advance money under certain conditions with the view of facilitating the purchase of land by tenants; (*b*) to advance money to companies for the purpose of the reclamation of waste or uncultivated land, or for other works of agricultural improvement; (*c*) to advance money for the purpose of promoting emigration from Ireland; and (*d*) to act as a court of appeal from the inferior courts appointed to determine suits under the other provisions of the act; besides provisions for amending the law enacted by the Irish Landlord and Tenant Act of 1870 as to compensation for disturbance and improvements.

CHIEF TOWNS.—Dublin, the capital of Ireland (population, 1881, 249,000; with suburbs, 339,000), lies in the province of Leinster, within a mile of Dublin Bay, and is divided into two nearly equal parts by the Liffey, which runs from west to east through it. In the centre of the south side of the city stands Dublin Castle, a structure dating from the thirteenth century, and more remarkable for size than architectural features. It is the residence of the Lord-lieutenant of Ireland, and the place in which all the head government offices are situated. To the east, facing College Green, is the Bank of Ireland, formerly the Irish Parliament House, one of the finest buildings in the city, with a noble colonnade of Ionic pillars. Facing the same area is Trinity College, the building in which the work of Dublin University is carried on. Besides being the seat of government, Dublin is the seat of the supreme courts of law for Ireland, and of various learned, scientific, and other societies. The manufactures are of little note. In

former times woollen, linen, and silk goods were largely manufactured, but these branches have either become extinct or dwindled into insignificance, and the distilling of whisky and the brewing of porter are now the only industries of the city producing articles of export. The shipping of the port is nevertheless greater than that of any other port in Ireland. The harbour is formed by two walls, one on the north side the other on the south, the latter running out into Dublin Bay for 3½ miles from the south bank of the Liffey.

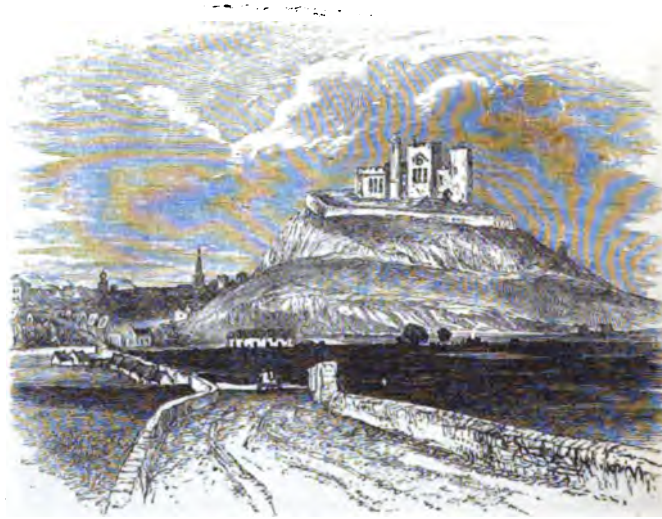
Belfast, lying in low alluvial land on the left bank of the Lagan, at the head of Belfast Lough, is the next town in Ireland in respect of population, and one of the most rapidly rising towns in the whole kingdom. Between 1861 and

Grafton Street, Dublin.

1881 its population increased from 122,000 to 208,000, an increase due to the great industrial and commercial activity of the place. Belfast is the centre of the Irish linen trade as well as the chief seat of the manufacture of both linen and cotton in Ireland, having within itself the great majority of the spinning-mills and power-loom weaving factories in Ireland. Various other branches of manufacture are carried on, and on Queen's Island, an island formed by the opening of a new channel for the Lagan in 1840, there is an iron shipbuilding yard, from which have been launched some of the finest vessels afloat, among them the White Star line of mail steamers. The shipping accommodation is such as to place Belfast among the first-class ports of the kingdom. One of the Queen's Colleges of Ireland is situated at Belfast, the others being at Cork and Galway. Belfast is a comparatively modern town, its prosperity dating from about 1777, when the cotton manufacture was introduced.

Cork, the principal town in the south of Ireland, has remained stationary for above half a century with a population of about 80,000. It is situated on the

Lee, at the head of a safe and commodious inlet of the sea known as Cork Harbour, and carries on a considerable trade, particularly with Bristol. A naval dockyard is now under construction on Haulbowline, an island within Cork Harbour. Queenstown, another port in Cork Harbour, is a common place of call for transatlantic vessels. Limerick, at the head of the estuary of the Shannon, had in 1881 a population of 39,000, carries on important linen and other manufactures, and is the leading port on the west coast of Ireland for the shipment of raw produce. Galway, 45 miles north by west of Limerick, at the mouth of the Corrib in Galway Bay, has a population of 15,000, and also carries on a considerable trade in raw produce. Another important trading-place is



Town and Rock of Cashel, co. Tipperary.

Waterford, on the Suir, in the south-east, population 22,000. Drogheda (13,000) in Louth, at the mouth of the Boyne, carries on a considerable trade with Liverpool, and manufactures linen and cotton yarn besides other articles, but is chiefly celebrated from the fact that the battle of the Boyne, in which James II. was completely defeated by William III., was fought in its immediate vicinity. The principal port on the north of Ireland is Londonderry (population 2°,000), at the head of Lough Foyle. It was formerly called Derry, but, having been burned down in 1608 by Irish insurgents, it was rebuilt by a company of London merchants, to whom it was granted by James I., and from this fact it received its present name. Cashel in Tipperary is now a place of no importance, but is noted historically as the residence of the ancient kings of Munster. It was made an archbishopric in 1142, and possesses a spacious cathedral. In the vicinity there are some interesting ruins.

HISTORICAL SKETCH.—Down to the sixteenth century the greater part of Ireland remained parcelled out among a number of native chiefs (kings of

Connaught, Munster, &c.) who were nearly constantly at feud with one another. In the latter part of the twelfth century the south-eastern portion of the island, comprising the territory embraced by the modern counties of Drogheda, Dublin, Wexford, Waterford, and Cork, was occupied by the English, and was known as the English Pale. This portion was governed by various nobles subject to a viceroy, but the subjection was sometimes little more than nominal, and for several centuries the power of the home-government of England, even within the English Pale, was very slight. The whole island was first brought under subjection to England in the reign of Henry VIII., between 1535 and 1542. Its complete incorporation with the rest of the United Kingdom took place in 1801.

ADJACENT DEPENDENCIES OF THE UNITED KINGDOM.

THE ISLE OF MAN is an island in the Irish Sea, about 31 miles from England, 32 from Ireland, and 18 from Scotland. Its extreme length, north-east to south-west, is about 30 miles; its greatest breadth on a parallel of latitude 13 miles; and its area 145,325 acres or 227 square miles. The island is hilly, especially the southern portion; the highest point is Sneafell, 2024 feet high. The hills are chiefly composed of clay-slate, and they are intersected by veins of lead, zinc, copper, and iron, the first two of which are worked to a considerable extent. Less than two-thirds of the surface is profitably occupied, and of this portion more than five-ninths is in grass and permanent pasture, upwards of a fourth in corn crops (chiefly oats and barley), and somewhat more than an eighth in green crops (chiefly turnips and potatoes). The greater portion of the island is in the possession of yeomen farming their own little estates of from 10 to 200 acres, and consisting mostly of a portion of lowland with hill pasture. The manufactures are almost entirely domestic. The herring-fishery is important. The people are of Celtic origin, and the Manx language, a Celtic dialect, is still in use, though all the inhabitants speak English. The island has an independent legislature, composed of a governor nominated by the crown, a council of eight members, of whom the Bishop of Sodor and Man is senior, and the House of Keys, a body of twenty-four individuals, formerly self-elected, but since 1866 elected by the people. The chief towns are Douglas (14,000), Castletown, Peel, and Ramsay. The Isle of Man was purchased in 1764 for the British crown from the dukes of Athole, by whom it was then held as a feudal dominion. The population according to the preliminary returns of the census of 1881 was 53,492, or 236 to the square mile.

THE CHANNEL ISLANDS are a group of islands belonging to Britain in the British Channel, off the west coast of Normandy in France. They consist of Jersey, Guernsey, Alderney, and Sark, with some dependent islets, and have an area of 48,322 acres or 75½ square miles. They all consist of igneous rocks, nearly denuded of the stratified rocks with which they seem at an earlier period to have been covered, and the principal minerals are felspar, quartz, hornblende,

asbestos, and chlorite. The flora is remarkably rich, numbering nearly 2000 species. The soil is fertile, and produces large quantities of potatoes, turnips, mangold, vetches, wheat, &c. Upwards of two-thirds of the soil is profitably occupied, and of the land under cultivation less than a half is in permanent pasture or sown with artificial grasses, about a third is under green crops, and about one-sixth under corn crops. The islands are celebrated for a peculiar breed of cattle known by the name of Alderney or Norman cattle. Property is much subdivided on the islands, from 5 to 8 acres being regarded as a fair estate. Wealth is pretty equally divided, and poverty and pauperism are rare. All articles excisable in Britain are free of duty in the Channel Islands, and there are no assessed taxes, no custom-houses, and no turnpikes. The language of ordinary life is nearly the same as Old Norman French, but French is the language of the law-courts, and English is generally understood, and is taught in all the parochial schools. The government of the islands is in the hands of bodies called the "states," some members of which are named by the crown, while others are chosen by the people, and others sit *ex officio*. The chief town is St. Heliers, in Jersey, with a population of about 31,000. The Channel Islands form the only remains of the Norman provinces once subject to the British crown. The total population in 1881 was 87,731, or 1162 to the square mile.

HELIGOLAND is a rocky islet of about 130 acres in extent, lying in the North Sea, nearly equidistant from the mouths of the Elbe and Weser. It is composed of a reddish sandstone which is rapidly being worn away by the sea. The inhabitants, who number about 2300, are of Frisian descent, and speak a Frisian language. Their chief support is the fisheries. Heligoland was taken by the British from the Danes in 1807, and was left in the possession of Britain by the Treaty of Vienna in 1814.

FRANCE.

France (anciently *Gallia*) is a maritime country in the west of Europe, forming one of its most extensive, most populous, and most influential states. On taking a survey of this great country it is impossible not to be struck with the advantages it derives from its position. It not only forms a continuous and compact whole, but, while protected, where it is connected with the continent, by great natural barriers on all sides except the north-east, by the Pyrenees from Spain, by the Alps from Italy, by the Jura from Switzerland, and partly by the Vosges from Germany, a long line of coast on the west and north-west gives it immediate access to the great ocean thoroughfare, while on the south its harbours in the Mediterranean secure to it a large share in the traffic of that most important of all inland seas. The whole length of coast-line is 3177 miles, or about one mile of coast for every 64 square miles of surface. The longest lines that can be drawn across France are two diagonals, which intersect each other

—the one from the south-east to the north-west extremities, 670 miles, and the other, from the south-west to the north-east extremities, 555 miles. Measured on the meridian of Dunkirk the greatest length is 580 miles, and measured on the parallel of 48° 20′ the greatest breadth is 547 miles. The breadth near the centre is 400 miles, and along the parallel of 46° 15′, where it is narrowest, does not exceed 345 miles. The total area of France is 204,436 square miles.

POLITICAL DIVISIONS.—Before the revolution of 1789 France was divided into general governments, or provinces, as they are usually called, although by some writers this latter term is reserved for the ancient feudal territories into which France was divided in the middle ages. The number of these general

Departments.	Area, sq. m.	Pop. 1876.	Departments.	Area, sq. m.	Pop. 1876.
Ain	2238	365,462	Lot	2012	276,512
Aisne	2838	560,427	Lot-et-Garonne ...	2067	316,920
Allier	2821	405,783	Lozère	1996	138,319
Alpes (Basses-) ...	2684	136,166	Maine-et-Loire ..	2750	517,258
Alpes (Hautes-) ...	2158	119,094	Manche	2289	539,910
Alpes Maritimes ...	1482	203,604	Marne	3159	407,780
Ardèche	2133	384,378	Marne (Haute-) ...	2401	252,448
Ardennes	2020	326,782	Mayenne	1996	351,933
Ariège	1889	244,795	Meurthe-et-Moselle ...	2025	404,609
Aube	2676	255,217	Meuse	2405	294,054
Aude	2437	300,065	Morbihan	2625	506,573
Aveyron	3375	413,826	Nièvre	2632	346,822
Bouches-du-Rhône	1970	556,379	Nord	2193	1,519,585
Calvados	2131	450,220	Oise	2261	401,618
Cantal	2216	231,086	Orne	2354	392,526
Charente	2294	373,950	Pas-de-Calais ...	2550	793,140
Charente-Inférieure	2635	465,628	Puy-de-Dôme ...	3070	570,207
Cher	2780	345,613	Pyrénées (Basses-)...	2943	431,525
Corrèze	2265	311,525	Pyrénées (Hautes-)	1749	238,037
Corse	3377	262,701	Pyrénées-Orientales	1592	197,940
Côte-d'Or	3383	377,663	Rhin (Haut-) ...	233	68,600
Côtes-du-Nord ...	2659	630,957	Rhône	1077	705,131
Creuse	2150	278,423	Saône (Haute-) ...	2062	304,052
Dordogne	3545	489,848	Saône-et-Loire ...	3302	614,309
Doubs	2018	306,094	Sarthe	2396	446,239
Drôme	2518	321,756	Savoie	2224	268,361
Eure	2300	373,629	Savoie (Haute-) ...	1667	273,801
Eure-et-Loir ...	2268	283,075	Seine	184	2,410,849
Finistère	2595	666,106	Seine-et-Marne ...	2329	347,323
Gard	2253	423,804	Seine-et-Oise ...	2215	561,990
Garonne (Haute-) ...	2429	477,730	Seine-Inférieure ...	2164	798,414
Gers	2425	283,546	Sèvres (Deux-) ...	2316	336,655
Gironde	3761	735,242	Somme	2380	556,641
Hérault	2393	445,053	Tarn	2217	359,232
Ille-et-Vilaine ...	2597	602,712	Tarn-et-Garonne ...	1436	221,364
Indre	2624	281,248	Var	2349	295,763
Indre-et-Loire ...	2361	324,875	Vaucluse	1370	255,703
Isère	3201	581,099	Vendée	2588	411,781
Jura	1928	288,823	Vienne	2691	330,916
Landes	3599	303,508	Vienne (Haute-) ..	2130	336,061
Loir-et-Cher ...	2452	272,634	Vosges	2269	407,082
Loire	1838	590,613	Yonne	2868	359,070
Loire (Haute-) ...	1916	313,721			
Loire-Inférieure ..	2654	612,972			
Loiret	2614	360,903	Total.....	204,436	36,905,788

governments has varied at different epochs. Under Francis I., by whom they were instituted, there were nine, namely, Normandy, Guienne, Languedoc, Provence, Dauphiné, Burgundy, Champagne-et-Brie, Picardy, Ile-de-France. Under Henry III. there were twelve, formed by the addition of Brittany, Orléanais, and Lyonnais. Under Louis XIV. the number was fixed at thirty-two, to which a thirty-third was added by the acquisition of Corsica under Louis XV. In 1789 it was determined that the whole of France, including the island of Corsica, should be parcelled out into departments, and each department subdivided successively into arrondissements, cantons, and communes, an arrangement which was actually carried out in 1790. This division has since maintained its ground, and perhaps deserves it, because, instead of being merely an artificial nomenclature, it has the merit of being a kind of natural classification, each department being named after the most important physical feature which it contains; and thus furnishing, in the name, some knowledge of the space which it designates. The number of departments was originally eighty-three, but it has been at different times increased and decreased. The total number at present is eighty-seven, the area and population of which are given in the table on the previous page. As the old provinces, though no longer recognized in legal and other formal documents, continue so familiar to the French themselves, and are so frequently mentioned, not only by earlier writers, but in the geographical, historical, and statistical works of the present day, a table is here given exhibiting these provinces in alphabetical order, with the departments most nearly corresponding to them:—

PROVINCES.	DEPARTMENTS.
Alsace, ...	(Now German territory, except the dep. of Haut-Rhin).
Anjou, ...	Maine-et-Loire.
Artois, ...	Inland or south-eastern portion of Pas-de-Calais.
Aunis, ...	Maritime part of Charente-Inférieure.
Auvergne, ...	Puy-de-Dôme and Cantal.
Béarn-et-Navarre, ...	Basses-Pyrénées.
Berry, ...	Cher, Indre.
Bourbonnais, ...	Allier.
Brittany, ...	Côtes-du-Nord, Finistère, Ille-et-Vilaine, Loire-Inférieure, Morbihan.
Burgundy, ...	Ain, Côte-d'Or, Saône-et-Loire, Yonne.
Champagne, ...	Ardennes, Aube, Marne, Haute-Marne.
Corsica, ...	Corse.
Dauphiné, ...	Hautes-Alpes, Drôme, Isère.
Flanders, ...	Nord.
Foix, ...	Ariège.
Franche Comté, ...	Doubs, Jura, Haute-Saône.
Gascony and Guienne, ...	Aveyron, Dordogne, Gers, Gironde, Lot, Lot-et-Garonne, Landes, Hautes-Pyrénées, Tarn-et-Garonne.
Ile de France, ...	Oise, Seine, Seine-et-Oise, Seine-et-Marne, southern part of Aisne.
Languedoc, ...	Ardèche, Aude, Gard, Hérault, Haute-Garonne, Haute-Loire, Lozère, Tarn.
Limousin, ...	Corrèze, Haute-Vienne.
Lorraine, ...	Meuse, Vosges, Meurthe-Moselle (and German Lorraine).
Lyonnais, ...	Loire, Rhône.
Maine, ...	Mayenne, Sarthe.
Marche, ...	Creuse.
Nivernais, ...	Nièvre.
Normandy, ...	Calvados, Eure, Manche, Orne, Seine-Inférieure.
Orléanais, ...	Eure-et-Loir, Loiret, Loir-et-Cher.

Provinces.	Departments.
Picardy, ...	Somme, maritime part of Pas-de-Calais, northern part of Aisne.
Poitou, ...	Deux-Sèvres, Vendée, Vienne.
Provence, ...	Basses-Alpes, Bouches-du-Rhône, Var, eastern part of Vaucluse.
Roussillon, ...	Pyrénées-Orientales.
Saintonge and Angoumois,	Charente and eastern or inland part of Charente-Inférieure.
Touraine, ...	Indre-et-Loire.

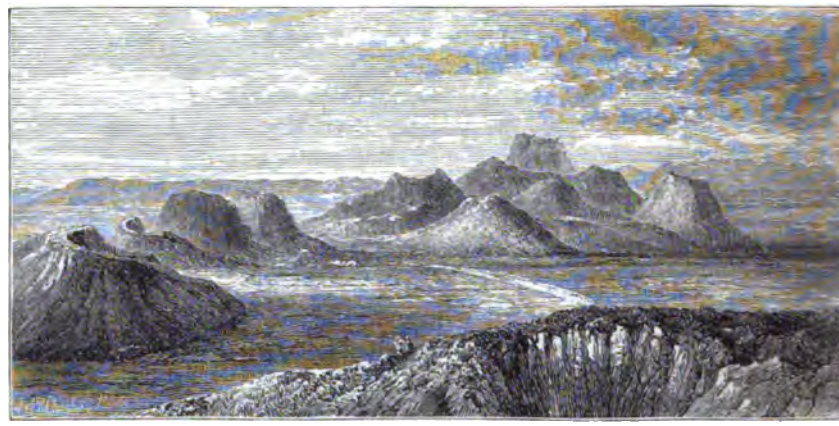
The following territories have been acquired since 1790:—

Territories.	Departments.
Avignon and Venaissin (including Orange previously acquired),	... Part of Vaucluse.
Nice, ...	... Alpes-Maritimes.
Savoy, ...	... Savoie, Haute-Savoie.

PHYSICAL FEATURES.—France is traversed from south-west to north-east by several chains of mountains forming the general water-shed of the country. This water-shed has two slopes, the one towards the west and north, carrying its waters to the Bay of Biscay, the Atlantic Ocean, the English Channel, and the German Ocean; the other towards the east and south, carrying its waters to the Mediterranean. The ranges of mountains and hills forming this water-shed stretch from the Pyrenees to the Vosges, and between these mountains include the western Corbières in the department of Aude, the Cevennes, the mountains of Vivarais, Lyonnais, Beaujolais, and Charolais, the Côte d'Or, the Plateau de Langres, and the Faucilles Mountains, forming a curve which never recedes far from the course of the Rhone and Saône. The highest part of this series of mountains is in the south in the neighbourhood of the sources of the Loire, Allier, Lot, and Tarn, where the peaks of Crucinas, Mézenc, and Lozère, belonging to the Cevennes, all rise to a height exceeding 5500 feet. This general water-shed is met towards the north-east by the eastern mountain ranges of France, namely, the Jura range and various Alpine ranges, one of the peaks of which is Mont Blanc, which may be regarded as the culminating point of the European mountains, although not absolutely the highest mountain in Europe. Near the centre of France, and separate from the great water-shed of the country, are several groups of volcanic mountains known by the general name of the Mountains of Auvergne, which rise from a plateau of about 3000 feet in height, characterized by scenes of a peculiarly wild, imposing, and picturesque aspect, by sombre valleys, deep gorges, impetuous torrents, and by a remarkable wealth in mineral and thermal waters. The chief peaks of this region are divided into three groups, a northern, called the Dômes, among which the highest peak is the Puy de Dôme, 5854 feet, a middle group, to which belongs the highest peak of all, the Puy de Sancy, 6100 feet, and a southern, in which the highest peak is the Plomb du Cantal, 5983 feet. With the exception of Brittany and parts of Normandy almost all the rest of France is level. The island of Corsica is mountainous in character, and contains loftier summits than any on the mainland of France, that of Monte Cinto in the northern part of the island, and that of Monte Rotondo near the centre, each attaining an elevation of more than 9000 feet, while several other summits exceed 7000 feet in height. The principal level

tract is a small strip about the middle of the east coast, and this is rendered almost uninhabitable by malaria. Attempts are now being made, however, to remedy this by means of plantations of eucalyptus.

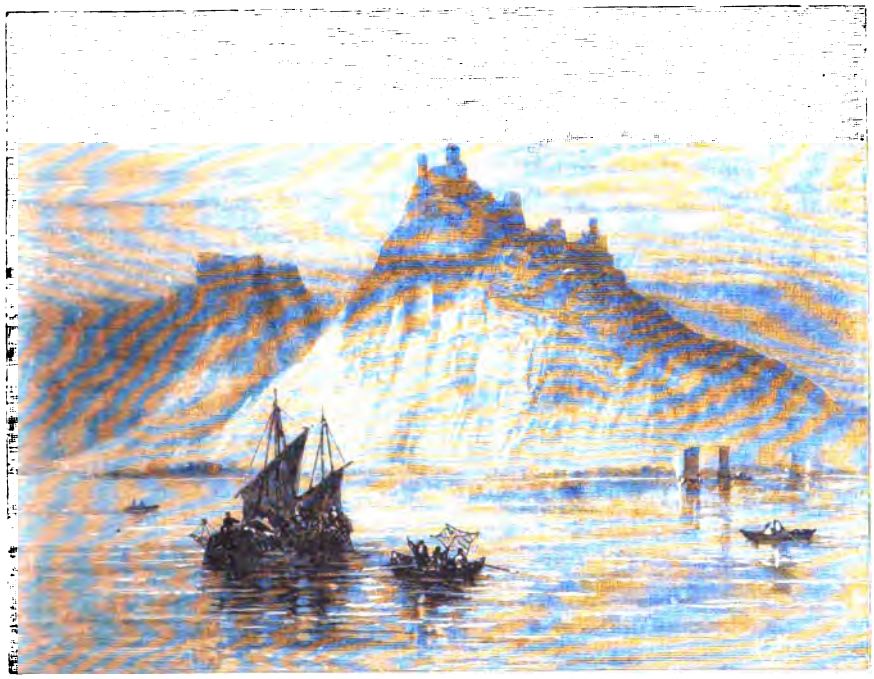
RIVERS AND LAKES.—The spurs thrown off by the great water-shed divide France into six principal basins, five of which are on the north-western slope, and one on the south-eastern. These are:—1. The basin of the Garonne and its affluents (the Ariège, Tarn, Lot, and Dordogne on the right bank, and the Gers on the left bank); area 35,000 square miles. For sea-going ships the Garonne is navigable only to the head of the estuary formed by its union with the Dordogne. From a short distance above St. Macaire there is a lateral canal by means of which the navigability of the river is continued for small boats. To



' Chain of the Dômes, from the base of the Puy Chopine.

the principal basin of the Garonne belong also the two secondary basins of the Charente on the north, and the Adour on the south. The most important tributary of the latter river is the Gave de Pau, which has its head-waters amidst the most remarkable scenery of the Pyrenean chain—the valley of Argelès, the dark gorge of Pierrefitte, the triangular basin of Luz, the circus of Gavarnie with its snow-clad mountain terraces and its waving cataract nearly 1400 feet high, the Vignemale with its glacier overhung by a tremendous precipice. 2. To the north of the basin of the Garonne is that of the Loire and its tributaries (the Nièvre and the Maine on the right bank, and the Allier, Loiret, Cher, Indre, Vienne, and Sèvre Nantaise on the left); area 44,400 square miles. The Loire is navigable from Roanne in the department of Loire 450 miles above its mouth; but between that town and Chatillon in the department of Loiret the navigation is so much impeded that a lateral canal has been constructed to connect these two points. To this basin also belong the secondary basins of the Vilaine and the Blavet. 3. The basin of the Seine and its tributaries (the Aude, Marne, and Oise on the right bank, and the Yonne, Loing, Eure, and Rille on the left bank); area 30,000 square miles. The Seine is navigable from Troyes. The secondary basins are that of the Somme in the north, and those of the Orne and Oise in the south.

4. The basin of the Meuse and its tributaries (the Sambre on its left bank), to which is added the secondary basin of the Escaut or Schelde. Only the southern portion of these two basins is included within the political boundaries of France. 5. The basin which pours a number of tributaries, the principal of which is the Moselle, into the Rhine. Only a comparatively small portion of this basin also is included within the political boundaries of France. 6. The basin of the Rhone, occupying the whole of the territory of France which lies to the south-east of the great water-shed; area 38,000 square miles. The tributaries of the Rhone are



Castle of Crussol, on the Rhone, near Valence.

the Ain, the Saône, the Ardèche, and the Gard upon the right bank, and the Isère, Drôme, and Durance on the left. Only the lower part of the course of the Rhone is in France. The secondary basins are those of the Var, Argens, and Arc on the east, and those of the Tet, Aude, and Hérault on the west. Near the point at which the last-mentioned river enters the department to which it gives name is situated the cavern or grotto of Ganges, one of the most remarkable known to exist anywhere, both on account of its extent and the singularity and magnificence of the sights it presents to those who enter it.

The **lakes** are so few in number, and individually so limited in extent, as to be undeserving of separate notice. The largest, Grand-lieu, in the department of Loire-Inférieure, covers an area of only 27 square miles, and is altogether devoid of interest. The next in size, St. Point, in the Jura, does not cover

three square miles. Others of still less dimensions become more interesting from their localities in the lofty regions of the Pyrenees, or in the deep hollows of ancient craters in Auvergne.

GEOLOGY.—As might be anticipated from the extent of space which it occupies, France possesses all the geological formations in a greater or less degree of development. The mountains generally have a nucleus of granite, which accordingly forms a prevailing rock in the Alps, on the east frontier, and their branches south to the shores of the Mediterranean, in the Pyrenees, the Cevennes, and the elevated plateau of Langres. In the Vosges it is more sparingly developed, its place being often occupied by porphyry; and in the Jura, where limestone occurs in such enormous masses as to have given its name to a peculiar formation (the Jurassic), it does not appear at all except in the form of erratic blocks; but, on the other hand, almost the whole of the extensive peninsula, including the old province of Brittany and part of those of Normandy and Poitou, is covered by it. The other crystalline rocks, consisting chiefly of trachytes and basalts, have received a magnificent development in Auvergne, where whole mountains are composed of them, and where the effects of remote volcanic agency are still presented to the eye in extinct craters and lava streams. The granite is overlaid by primitive stratified rocks of gneiss, and of micaceous and argillaceous slates, succeeded, particularly in the Pyrenees, by mountain limestone, which there assumes a form worthy of the name, and is found on Mont Perdu, full of its characteristic fossil shells, at the height of 10,990 feet above the level of the sea. The secondary formation, commencing with this limestone and continued in ascending series up to the chalk, always possesses peculiar interest, because within it valuable mines of lead and iron, and all the workable seams of coal, are included. It is largely developed in many parts of France, and furnishes a considerable number of coal and mineral fields, to which more particular reference will afterwards be made. The tertiary formation, including all the limestones, sands, and clays above the chalk, occurs continuously in two great divisions, and partially in a number of isolated spots, and covers a vast extent of surface. The larger continuous division is in the south-west, where it commences at the foot of the Pyrenees, and occupies a very large portion of the basins of the Garonne and of the Adour. The lesser but better

Grotto of Ganges.

known division takes the name of the Paris basin, and has been made familiar to the scientific world by the labours of Cuvier and other distinguished naturalists. It occupies a large extent of space around Paris, and stretches south into the valley of the Loire. A considerable stretch of the same formation is found in the basin of the Rhone, particularly along the east bank both of that river and its tributary the Saône. Of more recent alluvial formations the only one particularly deserving of notice is the delta of the Rhone. The mountain masses of Corsica are chiefly composed of granite and porphyry, which appear to be generally overlaid by extensive beds of limestone.

CLIMATE.—The climate of France is greatly diversified, but is nearly everywhere healthy. France may be divided into four climatic regions according to the different vegetable products which different districts are able to mature. Within the first, and warmest, the olive is successfully cultivated. It forms the south-east part of France, and is chiefly confined to the departments which border on the Mediterranean. The second region is characterized by the general cultivation of maize or Indian-corn. Its north limit is determined by a line drawn diagonally in an east-north-east direction, from the department of Gironde to that of the Vosges. The third region reaches north to the extreme limit of the profitable culture of the vine, and may be considered as determined by a line stretching between the mouth of the Loire and the town of Mézières, in the department of Ardennes. All the country beyond this line is included in the fourth region. In general it may be observed that with a very limited exception it lies wholly within the more moderate portion of the temperate zone, between the isothermal lines of 50° and 60°; and, consequently, with a mean annual temperature, the difference of which at its north and south extremities does not exceed 10°. In the north-west the prevalence of winds from that direction often produces a superfluity of moisture, which manifests itself in mists or in frequent and heavy showers of rain. At the opposite extremity, the south-east, a contrary effect is produced, and a sultry, stifling wind wrinkles up the skin, and not unfrequently spreads fever in its most malignant form. But it is only to a few exceptional districts that these remarks apply. After allowing for them, more than four-fifths of the surface remains under an atmosphere remarkable, more especially in its central districts, for salubrity, serenity, and brightness.

AGRICULTURE, &c.—More than nine-tenths of the soil of France is productive, and about one-half of the whole French territory is under the plough. To secure the productiveness of the land thus occupied it has been seen that nothing is wanting to the climate; and the soil, taken as a whole, is of at least medium fertility. In regard to the management of arable land the French are still far behind the English, but have nevertheless made great advances within the present century. During the last fifty years the production of cereals in France has more than doubled, while the extent of land under cereals has increased by only a sixth. This is equivalent to saying that the productiveness of the soil has increased in that time by two-thirds, a result attributable partly to increased assiduity in cultivation, but chiefly to the use of improved implements and the adoption of better agricultural methods. The improvement of

agriculture is a matter which receives direct attention from the government. Every arrondissement has an agricultural chamber, the members of which are appointed by the sub-prefect, and this chamber meets every year and draws up reports and offers suggestions. Nevertheless, agriculture in France, although advancing, is not keeping pace in its advance with many other parts of the Continent, and it is generally believed that that is to a large extent due to the almost endless subdivision of property, which necessarily results from the French law of succession, by which all children inherit equally. The ordinary cereals form the great bulk of the cultivated crops. In France these in the order of their importance are wheat, oats, rye, and barley. The crops next in importance to these are meslin or mixed corn (*meteil*), potatoes, maize and millet, and buckwheat. In addition to these hemp, rape, flax, and beet are pretty generally cultivated in France, though to a smaller extent. This last plant is cultivated pretty extensively in some departments, especially in that of Nord, for the manufacture of sugar. The most valuable crops of which the cultivation on a great scale is not general, but confined to particular districts, are tobacco, saffron, and hops. The cultivation of tobacco is monopolized by the government, and is confined to certain departments. In France the extent of land in grass and permanent pasture is proportionally much less than in the United Kingdom. In the United Kingdom the grass land (including meadows and permanent pasture) exceeds that in corn and green crops, whereas in France the grass land amounts to only about one-third of the land under other crops than grass. No branch of agriculture, however, is now receiving more attention in France than the cultivation of artificial meadows. Every year French cultivators are encroaching on the wastes and natural pastures to put them under artificial grasses, chiefly clover and lucerne, and the harvest obtained from these grasses now ranks next in importance after the cereals among all the products of French agriculture. This is a sign of the increasing attention now paid in France to the rearing of stock. Formerly the races of oxen, instead of being confined to a few of the more perfect types, were almost as various as the different districts into which the country is divided; but by the crossing of breeds, the removing of cattle from one province to another at different stages of their growth, and other improved methods of rearing, this state of matters is gradually being altered. The distinctive characteristics of local breeds are disappearing in favour of those qualities which the breeder aims at developing. The rearing of sheep is carried on with considerable success, and though the improvement of the carcass, by imparting to it the best feeding properties, continues to be too much overlooked, the fleece has in many districts been carefully and skilfully improved, and much wool, scarcely inferior to that of the merino, is raised. The general employment of cattle for agricultural purposes gives little encouragement to the rearing of draught-horses; but the warlike propensities of the nation have always created an extensive demand for horses of a description adapted both for heavy and light cavalry. Considerable pains have been taken to improve such breeds, by the establishment of government studs, and the rearing of them is extensively and successfully carried on. Asses and mules, generally of a superior descrip-

tion, are much used in France, and also reared in considerable numbers for exportation.

The cultivation of the **vine** is one of the most important branches of French agriculture. The total quantity of land in vineyards is nearly a twenty-fifth of the whole surface; but as there are extensive and continuous districts where there are no vineyards, the proportion which vine-land on the districts properly adapted to it bears to the whole land under cultivation attains a much higher ratio. There are seventy-five departments in which the vine is cultivated more or less, but three-fourths of the production is obtained from about thirty departments. In everything relating to this branch of culture the French are unsurpassed. The various first-class wines which they produce, under the names of Champagne, Burgundy, Bordeaux, &c., are in high repute and general demand over all Europe. The departments in which the greatest extent of land is occupied by vineyards are those in the basin of the Garonne, besides Hérault, and Var, on the Gulf of Lyon; but the departments of Marne and Aube, forming the ancient province of Champagne, and those of Côte-d'Or and Saône-et-Loire, comprised in Burgundy, though yielding a less quantity of wine than others, are highly distinguished for the superior quality of their products. It is estimated that in good years France produces about one-half of the whole wine production of the world. Since about 1870 the vineyards of France have suffered greatly from the devastations of the *Phylloxera*, some departments having been almost entirely laid waste by this scourge. In spite of that, however, the vintage of 1875 was the largest of the century, amounting to more than 1,800,000,000 gallons. A large part of the wealth of France consists in its **fruits**. Among the most important fruit-trees cultivated in France are the apple, the fruit of which, in the northern districts, particularly in Normandy, is largely used for the manufacture of cider; the chestnut, which, in the somewhat barren districts of Central France (Limousin, Cevennes, Auvergne, Périgord, Vivarais), yields an article of food which takes the place of the cereals among the poorer classes; the mulberry-tree, cultivated in eight or ten departments in the south-east (especially in Gard and Ardèche), both for its fruit and its leaves, the leaves being used as food for the silk-worms, on which the French silk manufacture depends; the olive, which grows in the same districts as the mulberry, but is principally cultivated in the department of Var; the pear, plum, cherry, apricot, peach, orange, fig, almond, &c. The products of Corsica are chestnuts and walnuts in the higher parts, the vine and the olive lower down, mulberries and oranges in the valleys, and even cotton and indigo in a few level tracts on the coast.

The **forests** of France occupy about one-sixth part of the whole territory. Their principal localities are the Ardennes, Vosges, and Plateau de Langres, in the north-east; the Jura in the east; and the mountains of Auvergne in the centre. The two loftiest of the French mountain-ranges, the Alps and the Pyrenees, are comparatively poor in wood. Isolated forests exist in various other quarters, as at Compiègne, Villers-Coterêts, Halatte, Chantilly, Fontainebleau, the mouth of the Seine, and in the Landes along the Bay of Biscay. In the last-mentioned locality a forest of sea-pine, about 100 miles long by 7 miles broad, has been

formed, which not only furnishes good timber, &c., but serves the important purpose of protecting from sand a low-lying level tract of great extent on which sheep are tended by shepherds mounted on stilts.

MINERALS.—The coal-fields of France are so numerous that coal-pits exist in no fewer than thirty-three departments; but most of these are very limited in extent. Several of the smaller fields occur in the north-west, and also in the south, where both anthracite and lignite are found; but the fields whose importance entitles them to particular notice are only two—that of Valenciennes in the north, forming the western extremity of the great Belgian coal-field, and that of St. Etienne, to which the manufactures of that town, as well as of Lyons and the surrounding district. are indebted for much of their prosperity. The annual

Shepherds of the Landes.

output is scarcely a seventh of that of the United Kingdom, and falls so far short of the annual consumption that a large import takes place from England and Belgium, particularly the latter, and wood continues to be the common fuel throughout France, at least for domestic purposes. The coal-fields contain seams of iron, which are extensively worked, and furnish ore to a great number of blast-furnaces; but most of the ore obtained in France is found at a distance from the coal-fields, and of the total amount of ore smelted in the country more than a half, reckoned by value, is imported. Among other metals the most important are copper and lead, but the total produce of all the minor metals (one-fourth of which belongs to the single department of Eure) is only about one-tenth of the whole consumption. Lead occurs in greater or less quantity in a great number of districts, and is generally argentiferous. It would seem, however, that the richness of the seams is not in proportion to their number, as the working of it is confined to three particular spots in the departments of Finistère, Lozère, and Puy-de-Dôme. Manganese is also widely diffused, and gold is obtained by wash-

ing from several rivers in the south. The principal saline substances are alum and common salt. The former occurs extensively in bituminous schists abounding with iron pyrites; the latter is obtained from mines of rock-salt, and from salt springs chiefly in the department of Meurthe-et-Moselle, and in still greater quantity from the lagoons and salt marshes which line many parts of the Mediterranean coast. Salt is indeed the most important mineral product of France after coal and iron, the quantity produced always exceeding 700,000 tons annually. A large revenue is also derived from quarries; from the granite and basalt of the Auvergne district, from the beautiful marbles of the Alps and the

Scene in the Pyrenees on the road from Pau to Eaux Bonnes.

Pyrenees, from the slate-mines, limestones, and lithographic stones of Limousin, and from valuable beds of common clay, fine potter's earth, and kaolin. Within the last few years the deposits of phosphates on the southern slopes of the great central plateau from which the mountains of Auvergne rise, and in certain northern departments (Meuse, Ardennes, and Pas de Calais) have acquired great economical importance as furnishing a valuable artificial manure. The springs of mineral water in France are remarkably numerous, especially in the departments bordering on the Pyrenees, where Bagnères de Luchon, Cauterets, Barèges, Pau, and numerous other places, have acquired celebrity on account of possessing such mineral springs in great abundance, and also in the Auvergne district, and in the Alps and the Vosges. Corsica contains mines of iron, copper, and argentiferous lead, besides rich quarries of marble, alabaster, granite, and porphyry, as well as a great abundance of mineral and thermal waters.

MANUFACTURES.—The most important tissue is silk, which employs nearly

two millions of persons, and furnishes about 27 per cent in value of the whole of the manufactured products of France. It is made in a great variety of forms, plain and figured, and the industry has its principal locality at Lyons and the towns of the surrounding district, particularly St. Etienne. After it, though at a considerable distance, follow cotton stuffs, pure and mixed, at Rouen, St. Quentin, Troyes, Lille, &c.; woollens, including broad-cloths, at Louviers, Elbeuf, Sédan, Carcassonne, Abbeville, &c.; lighter woollen stuffs at Rheims, Roubaix, and Tourcoing; carpets at Paris, Aubusson, Abbeville, and Beauvais; linens, including fine muslin, gauze, and lace, at Lille, Armentières, Valenciennes, Cambrai, St. Quentin; embroidered articles at Nancy. The metal industries have also attained a high degree of importance. Hardware of all kinds is manufactured chiefly in the departments of Haute-Marne, Côte-d'Or, Haute-Saône, Ardennes, Nièvre, Meuse, Doubs, and Loir-et-Cher; cutlery has its chief seats at Langres, Thiers, and Châtellerault; St. Etienne is pre-eminent in the manufacture of arms; and Paris, Lille, Nantes, and Creuzot in that of machinery. Of the other manufactures of France the most important are porcelain at Sèvres, Paris, Limoges, and Bayeux; stoneware at Nevers, Montereau, &c.; and common pottery at Paris, Nevers, and Meillonas; beet-root sugar chiefly in the department of Nord; leather, and the various articles made of it, including gloves; paper, plain and stained; hats, hosiery, steel, iron, brass, and zinc ware, plate and flint glass, &c. Besides these, a great number of articles in which skill, taste, and ingenuity are more especially required have their common seat in the capital. Among others may be mentioned all articles of virtu, jewelry, clocks and watches, surgical and mathematical instruments, carriages, types, books, and engravings.

FISHERIES.—Among the fisheries of France that of sardines is most important on the coasts of Brittany and Corsica; that of herring, mackerel, turbot, salmon, &c., on the coasts of Normandy and other parts of the English Channel; that of tunnies and anchovies on the coasts of the Mediterranean. The most extensive oyster-beds are those of the basin of Arcachon in the department of Gironde; but the best oysters are those of Marennes in Charente-Inférieure, Cancale in Brittany, and the department of Calvados in Normandy. Cod-fishing is carried on actively near the Newfoundland bank by fishermen of St. Malo, St. Brieuc, and Granville, and near Iceland also by fishermen of Dunkirk.

MEANS OF COMMUNICATION, &c.—The canals of France are numerous, and furnish signal displays of engineering skill. The Canal du Midi, or, as it is sometimes called, the Canal of Languedoc, starting from a point in the Garonne a little below Toulouse, is continued in an east-south-east direction into the lagoon of Thau, and thereby gives a continued navigable communication between the Atlantic and the Mediterranean, in the line of the important towns of Bordeaux, Agen, Toulouse, Carcassonne, and Narbonne. In like manner three separate canals cut across the basin of the Rhone: the Canal du Centre, or of Charolais, connecting the Saône and Loire; the Rhone and Rhine Canal, so called from uniting these two rivers, partly by the intervention of the Doubs; and the Burgundy Canal, connecting the Saône, Yonne, and Seine. The effect of these three canals is to break down the barriers which isolate the basins of the Rhone,

Loire, Seine, and Rhine, and to give navigable access from any one of them into the other three. In all, France possesses about 3000 miles of canals, in addition to about 5000 miles of navigable rivers, giving a total equal to about one mile of internal navigation for every 25 square miles of surface. The roads of France are usually classified under the heads of national and departmental roads, besides which there is an extensive mileage of country or district roads (*chemins vicinaux*), the length of which is unknown. All the railways in France are granted to private companies for only a limited period, at the end of which they become

Lyons.

state property. Their total length is equal to about one mile of railway for every 14 square miles of surface. The number of letters delivered in France every year is equal to about 13 per head of the population, and the number of telegraphic messages equal to about one for every three persons.

COMMERCE AND SHIPPING.—The principal centres from which the internal commerce of France emanates, are Paris, Lyons, Rouen, Lille, St. Etienne, Toulouse, Nîmes, Nancy, and Perpignan; and the principal seats of its foreign commerce Marseilles, Havre, Bordeaux, Nantes, St. Nazaire on the Loire, Dunkirk, and Boulogne. With respect to the amount of its foreign commerce it stands second only to Britain among the states of Europe. Among the principal articles of import the raw materials of the manufactures of the country (wool, silk, cotton) hold the first place; articles of food come second, and manufactured articles third. Among the exports, on the other hand, the products of French manufacturing industry (woollens, millinery, sugar, and silk goods) come first, those of her vineyards and corn-fields next, while raw materials hold the last place. The shipping of France is far below what might be expected

from the development of its foreign commerce, considerably less than one-half of which is carried on in French vessels.

MONEY, WEIGHTS, AND MEASURES.—The unit of the French monetary system is the franc (of the value of about 9½*d.*), which is divided decimally. The same system has been adopted under a convention with France by Belgium, Switzerland, Italy, Greece, and Servia, and without any convention by Roumania, partially also by Spain and Hungary. The system of weights and measures in use in France is also decimal, the units with their English equivalents being as follows:—

The mètre		= 39·37 inches, or 3·28 feet.
(The kilomètre	= 1000 mètres	= 1093·6 yards, or ·621 of a mile.)
The are	= the square of ten mètres	= 1076·441 square feet.
(The hectare	= 100 ares	= 2·47 acres.
The square kilomètre	= 100 hectares	= ·386 of a square mile.)
The stère	= 1 cubic mètre	= 35·317 cubic feet.
The litre		= 1·76 pints.
(The hectolitre	= 100 litres	= 22·0097 gallons.)
The gramme		= 15·4323 grains.
(The kilogramme	= 1000 grammes	= 2·205 lbs.)

The same system has been adopted by Germany, Italy, Belgium, the Netherlands, Norway, Sweden, Switzerland, Roumania, Ecuador, and Hayti, and partially by Colombia. Japan also is stated to be about to adopt it.

RELIGION AND EDUCATION.—In France education in all its branches has long been taken under the special cognizance of the state, and the superintendence of it is expressly committed to a high functionary, who takes the name of minister of public instruction and religious worship (*des Cultes*). The principal educational establishments are classed under three heads—primary, secondary, and academical or superior. At the head, and as centre of the whole, stands the university. The minister of public instruction is considered its grand-master, and, with a council composed of thirty members, exercises an educational jurisdiction over all France. For this purpose the jurisdiction of the university is divided into twenty-seven *circonscriptions*, each of which has the name of *académie universitaire* of the chief place within its district. But in spite of the apparent completeness of the educational system in France, even primary education in that country is still very far behind. At the census of 1872 nearly a third of those above six years of age were found to be unable to read, and in some departments the proportion was nearly two-thirds. Since 1873, however, much has been done to promote elementary education. Subventions have been granted even to the smallest communal schools, and instruction has been made gratuitous where necessary. Religion, in like manner, is taken under the cognizance of the state, and falls within the province of the high functionary already mentioned. Here, however, his power of interference is much circumscribed; for while the state declares that the Roman Catholic is the religion of the majority, it does not establish it, but, on the contrary, places all forms of religion on an equal footing, and professes to deal impartially with all by paying salaries to their ministers. Roman Catholicism is at least nominally the religion of 98 per cent of the people. In reality, however, the majority of the French people, and especially of the men,

pay little regard to the claims of religion, and their adherence to Catholicism is described by themselves as political rather than religious.

PEOPLE.—The French are in the main a people of Celtic origin, but contain a considerable admixture of other, especially Teutonic elements. The Celts have maintained themselves in their greatest purity in the central region south of the Loire, and the Teutonic infusion is strongest in the basin of the Saône and Rhone, where the Burgundians settled, and in the northern provinces, settled by the Franks and Normans. But the Teutonic settlements in France were very different from those in England. In the latter country the invaders exterminated or displaced the previous inhabitants and occupied the whole of the land as far as they extended their settlements, while in the former this never occurred. Only a portion of the territory conquered at different times was confiscated by the conquerors; the remainder was left in the hands of the original possessors on condition of their paying something by way of rent, and the Teutonic settlers finally adopted the superior civilization of the people among whom they settled. The inhabitants of Brittany, although of Celtic origin, are not all descendants of the ancient Celts of France, but in part of fugitives from Britain who took refuge here in the fifth century when their own country was invaded by Angles and Saxons; and in this part of France a Celtic dialect is spoken to some extent even at the present day. Besides Celts France in ancient times contained in the south-west a population of totally different kindred, the Iberians, and the descendants of this people are still to be found occupying a strip along the base of the Pyrenees from Béarn to Roussillon. The primitive inhabitants of Corsica appear to have been a mixture of Iberians and Ligurians; but the people are now much more mixed, in consequence of successive settlements of Greeks, Romans, Carthaginians, Goths, Saracens, and Italians.

Though the French people are Celtic their language is not so. In the period of more than half a millennium during which France remained a Roman province the Romans had imposed their own language on the people, and French is accordingly a daughter of the Latin tongue. Literary French is the direct descendant of the dialect spoken in northern France and known as the *langue d'oil*, that is, the tongue in which *oil* was used for "yes," so called to distinguish it from the *langue d'oc*, the principal dialect of the south, where *oc* was used for "yes." Even at the present day pure French is spoken by all classes of the people only in the departments round Paris and the central provinces on both sides of the Loire. Elsewhere it is spoken only by the educated classes, the uneducated making use of various dialects, of which the *langue d'oc* is still one of the most important. Of the eighteen millions and a half of French peasantry the majority are said still to remain faithful to their ancient dialects. In French Flanders (department of Nord) Flemish is still the language of the people. In Corsica a dialect of Italian is spoken.

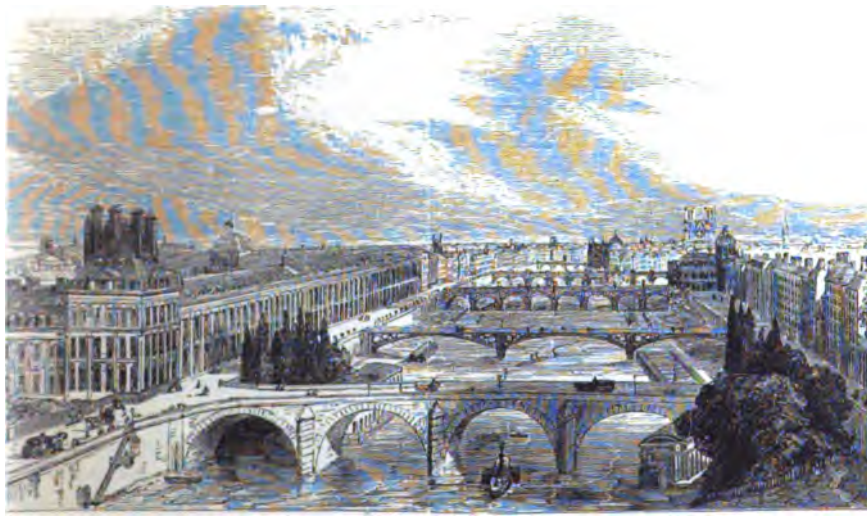
The density of population in France is not very great, about 180 to the square mile, which is about 10 per cent greater than that of Ireland. The rate of increase of the population, too, is remarkably slow when compared with that of

other European countries. Between the census of 1872 and that of 1876, the whole increase amounted to little more than 2 per cent; and it is a remarkable fact that in the rich agricultural provinces, such as Normandy and the basin of the Garonne, there is even a tendency to decline. In these localities there are few modes of earning a livelihood except by agriculture, and in order that this resource may be ample it is necessary that the subdivision of property should not go to an extreme, which, in accordance with the French law, it would inevitably do if families as a rule were large. The fact is, however, that in these parts of France an unusual proportion of the population live unmarried, and the families of married persons are in general very small. According to the latest official returns the cultivated land of France is divided among upwards of 5,500,000 proprietors.

GOVERNMENT AND DEFENCE, &c.—Since the overthrow of the second empire by a Paris mob on the 4th of September, 1870, France has had republican institutions. The details of the constitution were fixed by a law dated the 25th of February, 1875, and passed by a national assembly which met in 1871. This law places the legislative authority in the hands of an assembly composed of two chambers, the chamber of deputies and the senate. The chamber of deputies consists of one member for every arrondissement containing less than 100,000 of a population, and one for every additional 100,000 or fraction of that number in each arrondissement, and the members are elected by universal suffrage. The senate consists of 300 members, 225 of whom are elected by the departments and the colonies and 75 by the chamber of deputies. The head of the government is a president, elected for seven years by a majority of votes of the members of the two chambers sitting as one. The revenue is principally derived from indirect taxes, registration dues, and stamps, direct taxes, and the post-office. The indirect taxes are principally on beverages, native sugar, and salt, and include also the proceeds of the sale of tobacco. The principal direct taxes are a land-tax, a poll-tax, and tax on movables, a tax on doors and windows, and licenses for certain trades.

The French army is organized on the basis of the law of recruitment of July, 1872, the first article of which declares every Frenchman liable for military service. Subsequent articles restrict this liability to persons not declared unfit for military service between the ages of twenty and forty, and prescribe that five of the twenty years' service for which every Frenchman (with certain exemptions) is liable must be in the active army, four in the reserve of the active army, five in the territorial army (so called from being localized in certain regions), and six in the reserve of the territorial army. Organized on this basis the army of France on a peace footing numbers more than half a million of men, and on a war footing may be brought up to a strength of two and a half millions. The French navy is manned partly by conscription and partly by voluntary enrolment. There are five great naval stations on the coasts of France, namely, Cherbourg on the English Channel, Brest on the west coast of Brittany, Lorient on the south coast of Brittany, Rochefort on the Bay of Biscay near the mouth of the Charente, and Toulon on the Mediterranean.

CHIEF TOWNS.—Paris, the capital of France, is the second city in the world in point of population, having at the census of 1876 a population of 1,989,000 within the fortified wall by which it is completely surrounded. Its area within that limit is 19,270 acres, which is only about one-fourth of the area of London, and as its population is considerably more than half that of London, it is obvious that the inhabitants of Paris are much more crowded together than those of the other great capital. It is probably in consequence of this that the death-rate of Paris is materially greater than that of London—26 as compared with 23 per thousand per annum. To accommodate so large a population in so small a space the houses are generally high, seldom less than four stories and in the older parts of the town sometimes as high as eight; and, as in the large towns of



PARIS, from near the Pont Royal, looking up the Seine.

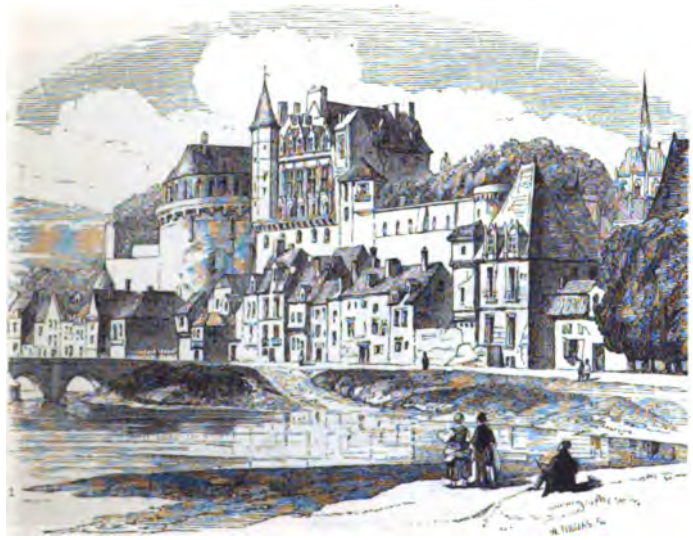
Scotland, each tenement is composed of several dwellings which are reached by a common stair. But in spite of the fact that the population is so densely packed together, the streets of Paris, especially in the west and south, are interrupted by extensive parks and gardens and wide promenades planted with trees, which contribute greatly to brighten the general aspect of the city. The Seine traverses the city in the form of a bow, and near the centre forms two small islands, the lowermost of which, the Ile de la Cité, is the cradle of Paris, and contains the ancient cathedral of Notre Dame. On this island the ancient Gallic tribe of the Parisii had a settlement, and on the site of that settlement Julius Cæsar built a town (Lutetia Parisiorum), which grew to be the capital of France. The influence of Paris as a capital is much greater than that of most capitals. Paris, according to a common saying, is France. In every department of national life the supremacy of Paris is undisputed; and this supremacy, says Charles Vogel, author of *Le Monde Terrestre*, is so well accepted by the pro-

vinces, and the prestige of the capital is combined with such attractiveness, that the French people have been divided with reason into two classes, those who inhabit Paris and those whose ambition it is to do so.

Lyons, or more properly Lyon (343,000), in the department of the Rhone, is admirably situated at the confluence of that river with the Saône. It is the second city in France, and essentially a seat of commerce and industry; above all, the great seat of the silk manufactures of France, which were introduced there by Italians in the fifteenth century, and greatly stimulated by the invention of the Jacquard loom, the honour of which belongs to this city. The name of the city is a corruption of the ancient Lugdunum. Marseilles (319,000), on the coast of the department of Bouches du Rhône, is the chief port on the Mediterranean, and the fourth in Europe, ranking in this respect next after London, Liverpool, and Hamburg. It is probably the most ancient city in France, having been founded in the sixth century B.C. by a Greek colony from Phocæa in Asia Minor, and was in classical times known as Massilia. A peculiar aspect is given to the country round Marseilles by the thousands of small country houses with which it is studded. These are the property not of the wealthy but of the working and lower middle classes, whose delight is to spend their Sundays in these retreats. Bordeaux (215,000), in the department of Gironde, is built in the form of a crescent on the left bank of the Garonne, and, besides being an important seat of commerce (exporting chiefly wine), is reputed to be the first among French provincial towns for the elegance and amenity of its manners. It is the ancient Burdigala, and was in Roman times capital of Aquitania Secunda, afterwards of the province of Guienne. Lille (163,000), the next town in point of size, is the largest and most industrious of the great manufacturing towns of the department of Nord. It stands in a rich plain intersected by the canals of the Deule, which partly surround the town, a circumstance to which it is said to owe its name, supposed to be a corruption of L'Ile (the island). Toulouse (132,000), in the department of Haute-Garonne, although an important seat both of commerce and manufactures, is more remarkable on account of its historical celebrity. Under the name of Tolosa it had the reputation of being one of the richest cities of ancient Gaul, was afterwards the capital of the Visigothic kingdom in the south-west of Gaul, and still later of an important fief belonging to the counts who took their title from this city. It now possesses a valuable museum of archæology, with galleries of sculpture and painting. St. Etienne (126,000; dep. Loire) owes its prosperity to the fact of its lying, as already mentioned, in one of the two principal coal-fields of France. Since the sixteenth century it has been the principal seat of the ribbon manufacture in France, and among its other industries may be mentioned the making of weapons of war, for the making of which the state has an immense manufactory here. St. Etienne furnishes Lyons with its supplies of coal, and as it stands higher than Lyons the loaded trucks are allowed to descend to the latter city, which is more than thirty miles off, by their own weight. Nantes (122,000; dep. Loire-Inférieure) on the left bank of the Loire opposite the point of confluence of the Sèvre Nantaise, is one of the most beautiful towns in France; and

though its shipping has greatly declined since the introduction of steam navigation, it is still the chief entrepot of the French colonies, and possesses numerous sugar refineries. It was anciently the capital of the Gallic tribe of the Nanneti. Rouen (105,000; dep. Seine-Inférieure), the old capital of Normandy, is famous for its monuments of Gothic architecture, especially the cathedral and the church of St. Ouen, and is also a busy manufacturing city, producing, with the district round, a third of all the cottons manufactured in France. Havre (92,000; Seine-Inférieure) dates only from the time of Francis I., but is now the second port of France, a fifth of the whole foreign commerce of France passing through it.

Of the numerous other towns in France either noted as seats of commerce



Castle of Amboise on the Loire.

and industry, or celebrated historically, or both, we can only select a few for mention. In the north Roubaix (84,000), Tourcoing (49,000), Valenciennes (26,000), and Amiens (67,000), the first three in the department of Nord, the last in that of Somme, may be mentioned as among the manufacturing towns of that quarter next in importance to Lille. In the north-east are three towns of historical note, Rheims or Reims (81,000; dep. Marne), one of the most ancient towns in France, famous for its cathedral of St. Remy, in which the kings of France were formerly crowned; Nancy (66,000; dep. Meurthe-et-Moselle), capital of the old duchy of Lorraine, and still one of the finest towns in France; and Troyes (41,000; dep. Aube), still possessing all the picturesque character of a town of the middle ages. A few miles to the west of Paris, lies Versailles, famous for its magnificent palace, used as a residence by the kings of France from the time of Louis XIV. to the Revolution. In about the same latitude as Paris and Versailles on the coast stands Brest (67,000), already mentioned as one of the great naval stations of France, having a very commodious roadstead,

a well defended harbour, and five large docks, four of which are hewn out of the living rock. Inland, on or near the Loire, there are three towns of such importance that they cannot be passed over. These are Angers (57,000; dep. Maine-et-Loire), the old capital of Anjou, with a cathedral; Tours (48,000; dep. Indre-et-Loire), once the capital of Touraine, and at one time much more populous than it is at present; and Orleans (52,000; dep. Loiret), with important woollen manufactures, nurseries, and gardens. Tours is also celebrated as possessing one of the largest typographical establishments in the world; and in its neighbourhood are the remains of the castle of Plessis-les-Tours, the resort of Louis XI. In general it may be remarked that the banks of the Loire in Touraine and Orleanais are studded with castles famous in French history or renowned for

Grenoble.

their architecture. In the south there are two towns of importance, Nîmes and Montpellier, within 30 miles of each other, near the Gulf of Lyon. The former (63,000; dep. Gard), the Nemausus of the Romans, possesses some of the most remarkable Roman remains in France, particularly the Maison Carrée, the best preserved specimen of Corinthian architecture of the period to which it belongs; the remains of a large amphitheatre, and those of a magnificent aqueduct, now known as the Pont du Gard. The latter, Montpellier (55,000; dep. Hérault), situated in the midst of delightful scenery, was long famous as a health resort, and still is so for its school of medicine, said to have been founded by the Arabs in the twelfth century. On the other side of the Gulf of Lyon is the naval station of Toulon (70,000; dep. Var), a strongly fortified place, deemed impregnable on the side of the sea. Further east, in the department of Alpes-Maritimes, is the famous health resort of Nice (53,000), an old town said to have been founded by Phocæans of Marseilles. Higher up in the basin of the Rhone there are still four towns deserving of mention,—Avignon, on the Rhone itself, the residence of the popes from 1309 to 1376; Grenoble (45,000; dep. Isère), the

ancient Gratianopolis, and Besançon (54,000; dep. Doubs), the ancient Vesontio, both strong fortresses; and, finally, Dijon (48,000; dep. Cote d'Or), the old capital of Burgundy.

HISTORICAL SKETCH.—France or Gaul was anciently occupied by Celtic and Iberian tribes, the latter occupying the south-west. In 125 B.C. the Romans conquered the south-eastern portion of it, which being erected into a Roman province, was henceforth known as Provincia, the modern Provence, many of the cities of which, such as Arles (Arelate), Aix (Aquæ Sextiæ), as well as Nîmes and Marseilles, already mentioned, were famous even in ancient times. Between 58 and 51 B.C. all the rest of Gaul (including Belgium) was conquered by Julius Cæsar, and under Augustus the whole was divided into four provinces —Gallia Narbonensis, formed of the original province; Aquitania, stretching from the Pyrenees to the Loire; Gallia Lugdunensis, from Gallia Narbonensis to the Seine and Marne; and Gallia Belgica, to the north of the Seine and Marne, and including Belgium. In the fourth century a new division was made into seventeen provinces. Early in the fifth century this part of the Roman territory was invaded by Burgundians, who formed a kingdom in the basin of the Rhone, and soon after a similar kingdom was formed in the Roman Aquitania by the western Goths (Visigoths). Within a century after that the Roman dominion was extinguished in Gaul, and both of these new formed kingdoms were overthrown by the German confederation of the Franks, who invaded Gaul under their king Clovis, and gave to the country the name by which it is still known. After the death of Clovis his dominions were divided between his sons, and France remained for the most part divided till about the end of the eighth century, when Charles the Great, or Charlemagne as he is usually called, conquered and organized an empire which extended from the Atlantic on the west to the Elbe, the Saale, and the Bohemian mountains on the east, and embraced also three-fourths of Italy, and Spain as far as the Ebro. On the death of Charlemagne, however, this empire was divided (814), as that of Clovis had been; but the eastern and western portions of the empire (Germany and

Place Royale, Arles.

France) were subsequently more than once united, till in 887 they were divided for the last time. But the royal power in France had by this time become little more than nominal. The country was parcelled out into a number of fiefs which were in effect petty kingdoms, the rulers of which bore the titles of dukes and counts, and resided in castles, many of which still remain either entire or in ruins. The following table will give an idea of the gradual growth of the French kingdom from the time of the accession of Hugh Capet, the founder of the Capetian dynasty, in 987:—

987	Ile de France, Picardy, Orléanais.
1100	Berri.
1202	Maine and Perche, Anjou, Touraine.
1203	Normandy.
1203–1369	Limousin.
1242	Angoumois, Saintonge, and Aunis.
1229–1271	Languedoc.
1284	Champagne.
1307	Lyonnais.
1349	Dauphiné.
1375	Poitou.
1453	Guienne and Gascony.
1476	Burgundy.
1481	Provence.
1499–1532	Brittany.
1531	Marche and Auvergne.
1558	Calais and district.
1559	Bourbonnais.
1589	Navarre, Béarn, and Foix.
1642	Roussillon.
1659	Artois.
1659–1667	French Flanders.
1674	Franche Comté.
1707	Nivernais.
1713	Orange.
1766	Lorraine.
1791	Avignon.
1860	Nice and Savoy.

COLONIES AND DEPENDENCIES.—In addition to the territory it occupies in Europe, France possesses Algeria, besides various colonies and protected states in Asia, Oceania, America, and elsewhere. These, with their area and population according to the most recent returns, are exhibited in the following table:—

	Area in sq. miles.	Population.	Date of Acquisition.
1.—France and Algeria.			
France	204,090	36,905,788	
Algeria	122,914	2,867,626	1830
2.—Colonies.			
In India (Pondichéry, Karikal, Mahé, Yanaon, Chandernagore), ...	196	285,022	1679
French Cochin-China	21,710	1,528,836	1861
Marquesas and Loyalty Islands	1,309	19,345	1841; 1864
New Caledonia	6,718	58,800	1854
Senegambia	?	197,431	1637
Gold Coast and Gaboon	?	?	1843
Isle of Réunion	764	183,786	1649
Isles of Mayotte and Nossi-Bé	207	17,052	1843
Isle of Ste. Marie	67	6,948	1635
St. Pierre et Miquelon	81	5,121	1635
Martinique	381	161,995	1635
Guadeloupe and dependencies	720	175,516	1634
St. Barthélémy	8	2,374	1878
French Guiana	35,080	27,082	1604
3.—Protected States.			
Kingdom of Cambodia	32,380	890,000	1862
Tahiti and dependencies	438	21,936	1841
Islands of Toubouaï, Vavitou, and Rapa...	56	675	1845
Touamatou Islands...	2,934	8,000	1844
Gambier Islands	12	1,500	1844
Total (in round numbers).....	430,000	43,000,000	

MONACO.

Monaco is a small principality on the Mediterranean, surrounded on all sides except the south by the French department of Alpes-Maritimes. Its whole area is only about 6 square miles, and its population about 7000. The capital, of the same name, with about 3000 inhabitants, is a strongly fortified place, situated on the sea in the midst of olive, orange, and lemon groves, and notorious from the fact that gaming tables, suppressed nearly everywhere else in Europe, are still permitted there. The principality of Monaco was conferred in the tenth century by the emperor Otho I. on a prince of the house of Grimaldi, which became extinct in the male line in 1731. In 1793 it was incorporated with France, in 1814 restored to its princes, but in 1815 was placed under the sovereignty of the king of Sardinia. In 1860 it came again with the district of Nice into possession of France, but that portion of it which is still independent was handed over to its present princes by Napoleon III.

BELGIUM.

Belgium (French, *Belgique*) is a kingdom lying to the north of France. Measured along the line connecting the north-west and south-east extremities of its frontier on the side of France it has a length of 189 miles, and measured along a line at right angles to this one stretching from the north-eastern corner of the country to a point about the middle of its French frontier it has a breadth of 116 miles.

POLITICAL DIVISIONS.—The following table shows the areas of the different provinces, with their population on 31st December, 1878:—

	Area in sq. m.	Population.		Area in sq. m.	Population.
Antwerp,	1,093	560,020	Liège,	1,116	650,801
Brabant,	1,267	978,071	Limburg,	931	209,343
Flanders, East,	1,157	879,682	Luxemburg,	1,705	208,134
Flanders, West,	1,248	693,530	Namur,	1,413	321,835
Hainaut,	1,436	975,252		11,366	5,476,668

PHYSICAL FEATURES.—A general idea of the surface of the country may be obtained by regarding it as an inclined plane, somewhat rugged, and considerably elevated in the south-east, from which it slopes more or less gradually north and west, till it sinks into low plains only a few feet above the level of the sea. The elevated districts are formed by ramifications of the Ardennes, which, entering Belgium from France, stretch along the south of Namur, occupy the greater part of Luxemburg, and attain their culminating point in the south-east of Liège at Stavelot, in the neighbourhood of Spa, where the height exceeds 2000 feet. In accordance with the general slope of the surface the main streams of Belgium have a northern direction; and the whole country lies

within the basin of the German Ocean. Only two of the Belgian streams—the Meuse and the Scheldt or Schelde—have a magnitude which entitles them to the name of rivers; but so important are these two in themselves, and so numerous their affluents, that no country in Europe is better supplied with natural water communication. The climate of Belgium is on the whole temperate and agreeable. The only parts of the country which can be considered unhealthy are the low flats which prevail in Flanders, and the polders or rich alluvial tracts which have been gained from the rivers by embankment, chiefly

The Meuse, near Namur.

in Antwerp. There agues and other diseases engendered by a humid and sluggish atmosphere are prevalent.

GEOLOGY.—The rocks appear to rest on primary formations; but those which reach the surface generally consist of slate, old red sandstone, and mountain limestone. Proceeding north-west in the direction of the dip, these rocks take a cover, and the coal formation becomes fully developed. This coal-field is a continuation of that of the north of France, and stretches through Belgium in a north-east direction, occupying the greater part of the province of Hainaut and a considerable part of that of Liège, and skirting the provinces of Namur and Luxemburg. It contains numerous workable seams both of coal and iron. North and west, beyond the limits of this coal-field, a more recent formation is found, covered by deep beds of clay and sand, the former prevailing more in the interior, and the latter near the coast, where it has been drifted into hillocks or downs, and forms the only barrier against the encroachments of the

sea. Some of the clay in this district is fit for the manufacture of fine pottery; but the greater part of it is fit only for coarse ware, or for bricks.

AGRICULTURE.—The greater part of the country is well adapted for agricultural operations, and the inhabitants have so happily availed themselves of their natural advantages that they early began, and in some respects still deserve, to be regarded as the model farmers of Europe. The high lands traversed by the Ardennes are chiefly occupied by natural pastures, and produce a hardy breed of horses, which, being admirably adapted for light cavalry, are largely exported to France for that purpose; while vast herds of swine are fed almost at no expense on the mast of the forests. In the opposite extremity of Belgium, chiefly in the province of Antwerp and partly in that of Limburg, an extensive tract occurs which strikingly contrasts in appearance with the hilly districts of the south-east, but is perhaps still less adapted for the ordinary operations of agriculture. This tract, known by the name of Campine, is a vast expanse of moorland waste, of the most dreary appearance, a dead monotonous flat composed for the most part of barren sand, in which the ordinary heaths and lichens will scarcely grow, but cultivated here and there in all spots where industry can bring about a profitable result. With exception of the two districts now described there is no part of Belgium in which agriculture does not flourish; but the husbandry which has been so much lauded is seen in its greatest perfection in East and West Flanders. Its excellence is owing, however, not so much to what is called high farming as to economy and industry. In fact, the Flemish husbandry partakes more of the nature of garden than field culture. In many of its operations, no doubt, horse labour is employed. The plough and the harrow are in frequent requisition, but the implement on which the greatest dependence is placed is the earliest and simplest of all—the spade. To give full scope for the use of it the ground is parcelled out into small fields of a square form, which have their highest point in the centre, and slope gently from it in all directions towards the sides, where ditches of sufficient size carry off the superfluous water as it filters into them. To promote this filtration the ground is trenched to a uniform depth, so that the slope of the subsoil corresponds as nearly as possible to that of the surface. In performing this trenching a considerable degree of skill and ingenuity is displayed. The performance of the whole at once would be a formidable and not a very efficient process. In a few years a new subsoil would be formed, and the trenching would require to be renewed. This is rendered unnecessary in the following manner. The land is laid out in ridges about five feet wide, and when the seed is sown it is not covered as usual by the harrow, but by earth dug from the furrows to the depth of two spits, and spread evenly over the surface. By changing the ridges and throwing the furrow of the previous year into the ridge of the next, the whole ground becomes furrow in the course of five successive crops, and is consequently trenched to the depth of about 18 inches. This process of trenching never ceases, and is unquestionably one of the most important characteristics of the Flemish husbandry. The only other process particularly deserving of notice is the care and skill manifested in securing an adequate supply of manure.

Every farm is fully stocked, and the cattle, instead of being grazed in the fields, are fed at home, in winter on turnips and other roots, and in summer on green crops carefully arranged, so as to come forward in regular succession, and yield a full supply of rich succulent food. In addition to this every homestead has a tank, built and generally arched with brick, into which all the liquids of the cattle-sheds are conveyed, and have their fertilizing properties increased by the dissolution of large quantities of rape-cake. The principal products of Belgian agriculture are wheat, rye, oats, after which come barley, potatoes, beet-root, hops, flax, oil-seeds. The extent of land in grasses, including lucerne and clover, is considerably less than a half of that under other crops. In general Belgian stock is inferior to that of Britain; but there are good Belgian breeds both of cattle and horses, and the horses of Flanders in particular are admirably adapted for draught, and an infusion of their blood has contributed not a little to produce the magnificent teams of the London draymen. About two-thirds of the whole kingdom is under cultivation, and about nine-tenths profitably occupied, leaving only about one-tenth waste. Of the land under cultivation about two-fifths, chiefly in West Flanders and Luxemburg, is cultivated by the owners themselves; and the remainder, chiefly in East Flanders, Brabant, and Antwerp, by farmers paying rent to the owners. About a fourth of the entire population is engaged in agriculture.

About one-sixth of the whole surface of the kingdom is occupied by **wood.** The distribution of it, however, is by no means equal; and hence, while the two Flanders and Antwerp fall far below the average amount, Luxemburg and Namur rise far above it, and are very densely wooded. The forests of these provinces are the remains of the ancient forest of Ardennes, which Cæsar describes as stretching far out into France from the banks of the Rhine. They consist of hard wood, principally oak, which is often of great size, and furnishes large quantities of the most valuable timber. South Brabant also possesses several fine forests, among others that of Soignies, with which the field of Waterloo has made us familiar. In the other provinces scarcely anything deserving the name of forest is seen.

MINERALS.—The mineral riches of Belgium are great, and, after agriculture, form the most important of her national interests. The coal-field, already described under Geology, has an area of above 500 square miles, and produces in proportion to the size of the country a greater quantity of coal than any other country except Britain. Two-sevenths of the product is exported, principally to France. Iron comes next in importance to coal. It is produced chiefly in Namur, between the Sambre and the Meuse, but also in the province of Liège. Of less importance are sulphurous pyrites, zinc (from calamine and sulphide of zinc), lead (from galena), and manganese. Besides minerals, properly so called, Belgium is abundantly supplied with building and paving stone, limestone, roofing-slate, and marble. Of the last, the black marble of Dinant is the most celebrated.

MANUFACTURES.—The industrial products of Belgium are very numerous, and the superiority of many of them to those of most other countries is con-

fessed. The fine linens of Flanders and lace of South Brabant are of European reputation. Scarcely less celebrated are the carpets and porcelain of Tournay-the cloth of Verviers, the carriages of Brussels, the cutlery of Namur, the exten, sive foundries, machine-works, and other iron establishments of Liège. The cotton manufacture, confined chiefly to Flanders and Brabant, has advanced greatly, though it is still far behind that of linen, and also behind that of wool. The extraction and refining of beet-root sugar are rapidly acquiring a great degree of importance, the former principally in Hainaut, the latter in Antwerp. Manufacturing industries employ directly fully a fifth of the population.

COMMERCE AND COMMUNICATIONS.—The geographical position, the admirable facilities of transport, and the indefatigable industry of the inhabitants, early combined to place Belgium at the very head of the trading

Namur.

countries of Europe. The gradual rise of competitors still more highly favoured has deprived her of this pre-eminence, and with the limited extent of her sea-coast it is not to be expected that she can ever take high rank as a naval state; but her trade is still of great importance, and within recent years has made a rapid advance. Her coal and iron, and the numerous products of her manufactures, furnish in themselves the materials of extensive traffic; while the possession of one of the best harbours in the world (Antwerp), situated on a magnificent river, which directly or by canals stretches its arms into every part of the kingdom, and now made accessible by a system of railways to every state of Central Europe, naturally renders Belgium the seat of a transit trade even more important than that which it monopolized during the middle ages. The total length of the Belgian canal navigation is 480 miles, which added to the river navigation, about 590 miles, gives a total equal to more than one mile of inland navigation for every 11 square miles of surface; while the total length of the railways is equal to more than 1 mile of railway for every 5 square miles of surface. Two-thirds of the railways belong to the state. The railway system has its centre at Malines. The principal imports for home consumption into

Belgium are cereals, fibres for spinning and weaving, ores and metals, and colonial produce; and the principal exported articles of native production are cereals, coal and metals, sugar, flax, yarns and tissues, and other manufactured articles. The exports of Belgian produce and manufactures are sent chiefly to France, England, Germany, and Holland. The total value of the special commerce of Belgium, that is, of the imports for home consumption and the exports of native produce and manufactures, is about a third of that of France, although the population of the former country is only about one-seventh of that of the latter; and the commerce in transit is about equal in both. The external trade is chiefly carried on by means of foreign (British) vessels. The number of private letters delivered in Belgium every year is equal to about twelve per head of the population, and that of the private telegrams to about six for every eleven of the population. The system of money, weights, and measures, is the same as that of France.

Interior Court of the Palais de Justice, Liège.

RELIGION AND EDUCATION.—The majority of the people of Belgium are Roman Catholics, and Protestantism, though fully tolerated, and even salaried by the state, cannot count above one-twentieth of the population among its adherents. One astonishing circumstance connected with this state of matters is, that Belgium early embraced, and at one time seemed on the eve of being gained to, the Reformation. Persecution of the most fearful kind took place, and did what perhaps it has never done in any other part of the world, not only forced the people back to a religion which they had renounced, but forced them back as willing converts.

Education is at present almost entirely in the hands of the Roman Catholic clergy, and largely in those of the Jesuits. Elementary schools are supported partly by the state, partly by the provinces, and partly by the communes; the state paying one-sixth, the province one-sixth, and the communes the remaining four-sixths of the expenditure. Education is not compulsory, and in 1878 it was found that out of about 48,000 young men called out for military service more than 8000 could neither read nor write, about 2000 could read only, about 21,500 could read and write only, and about 15,500 had a superior education. For the higher education there are four universities—at Brussels, Ghent, Liège, and Louvain. All of these have faculties of philosophy, science, medicine, and

law, and that of Louvain (which has the largest attendance of all) has also one of theology. Brussels and Liège possess musical conservatories.

PEOPLE.—The Belgian population is the densest in Europe, being in 1878, 482 to the square mile. It is composed of two distinct races—Flemish, who are of German, and Walloons, who are of French extraction. The former, by far the more numerous, have their principal locality in Flanders, but also prevail throughout Antwerp, Limburg, and part of South Brabant. The latter are found chiefly in Hainaut, Liège, Namur, and part of Luxemburg. The language of each corresponds with their origin—the Flemings speaking a dialect of German closely allied to the Dutch, and the Walloons a dialect, or rather corruption of French, with a considerable infusion of words and phrases from Spanish and other languages. The far larger proportion of the population of Belgium is rural, and though property is very much subdivided (the number of freehold proprietors being more than one in five of the population) the Belgians manage, by a happy combination of agricultural with other industrial employments, to derive from their little tenures all the necessaries and not a few of the comforts of life. It is not to be denied, however, that in some of the provinces, particularly in the great manufacturing provinces of Flanders and Hainaut, large numbers of the population are in the condition of paupers. In the more purely agricultural provinces the proportion is much less. Thus in a recent year it was found that while in Luxemburg, the least populous of the Belgian provinces and that in which there are fewest manufactures and the smallest number of great fortunes, there was only one pauper for every 660 of the inhabitants; in West Flanders the proportion was one in eight, in East Flanders one in sixteen, and in Hainaut one in twenty.

GOVERNMENT AND DEFENCE, &c.—The Belgian constitution combines monarchical with a strong infusion of the democratic principle. The executive power is vested in a hereditary king; the legislative in the king and two chambers—the senate and the chamber of representatives—both elected by citizens paying about 35*s.* of direct taxes, the former for eight years and the latter for four, but one-half of the former renewable every four years and one-half of the latter every two years.

The principal head of revenue is that of railway receipts, and those next in importance are much the same as those in France. One-fourth of the revenue is absorbed by the interest on the national debt, and about one-third is required to defray the expenditure of the ministry of public works.

The strength of the Belgian army is fixed by law at 100,000 men on the war-footing, and 40,000 in time of peace. Its numbers are maintained by conscription, to which every able-bodied man is liable after completing his nineteenth year. The legal period of service is eight years, two-thirds of which is, however, allowed as a rule on furlough. Substitution is permitted. The defensive power of the kingdom is greatly increased by numerous strong fortresses, the chief of which is that of Antwerp. The navy is insignificant.

CHIEF TOWNS.—Belgium possesses four towns with a population exceeding 100,000; Brussels (French, *Bruxelles*), the capital, Antwerp, Ghent, and Liège,

all of which, except Brussels itself, were at one time places of much more importance relatively to the other cities of Europe than they are now. Brussels is situated in the province of Brabant near the middle of the country, and in 1878 had a population of 168,000, or including the surrounding communes which now form its suburbs, 390,000. In the tenth century it was a mere village, but in the twelfth it had grown to be of sufficient importance to be chosen as a residence by the dukes of Brabant. It is divided into an upper and a lower town, the former occupied by the wealthier portion of the community, the latter by the artisan classes; and the two are connected by a handsome double staircase of fifty steps. Its fine cathedral, dedicated to St. Gudule, dates from the thirteenth century, and the Hôtel de Ville, a very striking and remarkable edifice, from the fifteenth.

Cathedral of St. Gudule, Brussels.

Antwerp (160,000), in the province of the same name, besides holding a prominent place among the ports of Europe, is the most interesting town in Belgium in respect of its architectural monuments, conspicuous among which is its cathedral, begun in 1322 and completed in the sixteenth century. The city still preserves many of the masterpieces of Quentin Matsys, Teniers, Rubens, Van Dyck, and Jordaens, all of whom were connected with Antwerp in some way or other. The name of the city, a corruption of the Flemish *Aent werf*, "at the (shipbuilding) wharf," itself shows the early connection of the place with shipping; and in the beginning of the sixteenth century it was the chief seat of commerce in the world. Ghent, in French *Gand* (131,000), in the province of East Flanders, is mentioned in history as early as the seventh century, and down to the end of the middle ages was the most populous city in Europe. Its decline dates from the revolt of 1539, and it did not begin to regain its former prosperity till the introduction of cotton spinning in the beginning of the present century. Liège, in Flemish *Luik*, in German *Lüttich* (120,000), in the province of the same name, occupies a rising ground on the right bank of the Meuse, and is rendered conspicuous at a distance by the numerous belfries and tall chimneys with which it bristles, and which together with the vineyards that cover the slopes all round give a very picturesque character to the general aspect of the city and its environs. The citadel, on the left bank of the Meuse, commands a fine view. About 1450 Liège was as populous as Paris, both cities then containing about 150,000 inhabitants.

Of the other towns of Belgium none at the present day approaches these four in population, but one or two others deserve notice on account of their historical importance, or for other reasons. Of these the most noteworthy is the city of Bruges in West Flanders, which, though now containing a population of only 45,000, was in the first half of the fifteenth century, when the dukes of Burgundy held their court here, the most splendid and most opulent city in Flanders and in Europe. It began to decline about the end of the same century, after an insurrection in 1488 and a long period of unsettlement that followed; and as it has never experienced a modern revival, it is now, of all the cities in Belgium, that which has most completely preserved the stamp of the middle ages. Its broad streets and the rich decorations of its edifices, which are as singular in their character as they are imposing, continue to bear testimony to its ancient splendour. Malines (German, *Mecheln*, 41,000), on the southern frontier of the province of Antwerp, is the centre of the railway system, and the ecclesiastical metropolis of Belgium; but though its lace is celebrated, it is of little importance as an industrial centre, and the profound quiet that pervades its spacious streets contrasts in a striking manner with the ceaseless noise and bustle that prevail in its vast railway station. Louvain (35,000) is one of the decayed towns of Belgium. In the fourteenth century it was the residence of the dukes of Brabant, and at the time of its greatest prosperity, when it was one of the most important towns in Europe for the manufacture of woollen cloth, it numbered nearly 200,000 inhabitants. Its university, founded in 1426, was, in the sixteenth century, the most celebrated in Europe.

Antwerp Cathedral, from the Egg Market.

HISTORICAL SKETCH.—See the section on this subject under the KINGDOM OF THE NETHERLANDS.

KINGDOM OF THE NETHERLANDS.

The Kingdom of the Netherlands (Dutch, *Het Koningrijk der Nederlanden*) embraces at the present day the north and smaller half of the numerous pro-

vinces formerly combined under the same denomination, and lies north of Belgium and west of Germany. Its length on the meridian of 6° E. is 182 miles, and its breadth on the parallel of 52° N. 121 miles.

POLITICAL LIMITS AND DIVISIONS.—The following table gives the area and population of the several provinces of the kingdom, together with those of the Grand-duchy of Luxemburg, which is under the sovereignty of the King of the Netherlands, but otherwise an independent state:—

Provinces.	Area in sq. m.	Population in 1878.
Zeeland,.....	687	189,666
North Brabant,.....	1,980	468,667
Limburg,.....	851	240,497
Gelderland,.....	1,965	463,840
Utrecht,.....	534	191,370
South Holland, ...	1,166	796,109
North Holland, ...	1,057	667,946
Overijssel,.....	1,291	273,770
Drenthe,.....	1,028	117,026
Friesland,.....	1,282	323,872
Groningen,.....	887	249,124
	12,728	3,981,887
Grand-duchy of Luxemburg,	999	205,158
Total,.....	13,727	4,187,045

PHYSICAL FEATURES.—The Netherlands (or Low Countries, as the name implies) form the most characteristic portion of the great plain of northern and western Europe. It is the lowest part of this immense level, and that which has most recently emerged from the sea. Within it the Rhine, dividing into two main branches, the Waal and the Leck, and communicating with the Maas on the one hand and the Ijssel on the other, enters the sea through a number of arms and sluggish winding channels, which by no means represent the magnitude of the main stream as it flows higher up. The delta of the Rhine may be conceived to have been in early ages liable to perpetual change of form, as new mud-banks were deposited, blocking up the old channels and leading to the formation of new ones. Besides, it is obvious that the river floods, in forming a domain of alluvial deposits, had to contend with the sea, which washed away the accumulations of mud, or covered them with sand, according to the vicissitudes of weather and season. The soil of the Netherlands shows everywhere the proofs of this struggle between the ocean and the river, in the alternation of salt and fresh water deposits. It also bears evidence to the fact that these changes, effected by the floods of the Rhine or by irruptions of the sea, occurred frequently, long after the country had become inhabited. Remains of forests now lie buried under the waves of the German Ocean; paved roads, traces of villages and of cultivation, are found beneath the morasses on the banks of the Ems, and many similar proofs can be adduced of great physical changes respecting which history is silent. It must have become the first object, therefore, of the early occupants of this country to secure the natural permanence of their territorial possessions. For this purpose they had recourse to embankments high and strong enough to protect them under ordinary circumstances from the waves; and, placing wind-mills on the embankments exposed to the sea-breeze, they worked the pumps which drained the inclosed lands. But this drainage had a consequence which was doubtless not foreseen in the first instance, namely, a general subsidence of the land, which, with the gradual

elevation, perhaps, of the beds of the rivers, has made it necessary to increase the original embankments, and to continue the system of embankment to an unparalleled extent. The required skill grew with the gradually developed necessity. The art of the engineer in contending with floods, in constructing dikes and forming beaches, has attained the greatest perfection among the Dutch, who know how to secure important ends by simple means, such as faggots, matting, or the growth of rushes. In short the Netherlands present to our view, at the present day, an artificially constructed country, some portions of which are 16 feet below the surface of the sea, and nearly all too low for natural drainage. The whole country is divided by dikes, some of them 60

Windmills for the draining of Polders.

feet high, which protect portions of land from the sea, lakes, or rivers. These inclosed lands are called **polders**, and of these it is estimated that since the middle of the sixteenth century upwards of 900,000 acres have been formed. On the chief dikes are roads and also canals joining the rivers, and generally large enough to be navigable. The only heights are the sand-hills or downs, about 100 to 180 feet high, forming a broad sterile band along the coast of South and North Holland; and a chain of low hills, of similar origin perhaps, which extend from the middle of the province of Utrecht into Gelderland. In a line with the downs of the coast of Holland, beyond the mouth of the Zuider Zee, runs a chain of islands, namely, Texel, Vlieland, Schelling, Ameland, &c., which seem to indicate the original line of the coast before the ocean broke in upon the low lands. These inroads of the ocean began in the early part of the thirteenth century, and it was only in 1395 that the inundation took place by which the Zuider Zee was enlarged to its present extent. It is now intended to drain all that part of this gulf which lies to the south of the line joining Enkhuizen with

the mouth of the Ijssel, by which an area of about 480,000 acres, or about as large as that of the county of Surrey, will be added to the arable land of the Netherlands. The Lauwer Zee and the Dollart are also due to inroads of the ocean. From the left bank of the Ems the Bourtang morass, an irreclaimable peat-marsh, extends about 40 miles south-west towards the Zuider Zee. The Peel, a marsh of like nature but less extent, lies near the left bank of the Maas, on the east side of North Brabant.

CLIMATE.—The climate of the Netherlands is, from the maritime exposure and originally marshy character of the country, extremely humid, changeable, and disagreeable; violent winds, with varying temperature, frequently blow from south-west or north-west, and heavy sea-fogs are driven in, which injure vegetation. The mean temperature is not lower than in like latitudes in the British Islands, and the quantity of rain (26 inches) is somewhat less; but the winter is much more severe, and the sky is almost always overcast and troubled. The bright days hardly exceed forty in the year. Low fevers visit the marshy districts in autumn, but the dry cold of winter restores the peasant's health; and although the climate of the Netherlands is to strangers cheerless and distressing, yet its noxious qualities are unable to cope with the countervailing influence of good food and clothing and habitual cleanliness. The Dutch give particular attention to these domestic safeguards, and notwithstanding the ungenial climate in which they live longevity is not rarer among them than elsewhere.

AGRICULTURE, &c.—Gardening and agriculture have attained in the Dutch Netherlands a high degree of perfection. Yet the latter holds a subordinate place in rural industry. Wheat, of excellent quality, is grown only in favoured portions of the south provinces. Rye, oats, and buckwheat, with horse-beans, beet, madder, and chicory are more common crops; tobacco is cultivated in the provinces of Gelderland, South Holland, and Utrecht; flax in Zeeland and the environs of Dortrecht; and hemp, oil-seeds, and hops are also among the products of the soil of the Netherlands. Culinary vegetables are cultivated on a large scale, not merely for the sake of supplying the internal demand but also for the exportation of the seeds, which form an important article of Dutch commerce. The flowers also of Holland and adjoining provinces enter into the foreign trade. The strip running along the base of the downs from Leyden to Harlem is famous both for its flowers and for its medicinal herbs. But it is in stock, and dairy produce in particular, that the rural industry of the Netherlands shows its strength. Of the whole surface of the Netherlands rather more than 71 per cent is profitably occupied, and of this portion more than a half is in meadow and pasture, while not much more than three-eighths is under crops of all kinds. The Dutch horses are remarkable for size and strength, and much sought after; and in the number and excellence of their horned cattle the Dutch are quite unrivalled. The poultry-yard is to the Dutch farmer a source of wealth. Bee-culture is likewise actively carried on. The quantity of cheese and butter brought to market is amazing. The latter commodity is annually exported to the United Kingdom to the value of upwards of £2,000,000. About 7 per cent of the whole surface of the kingdom is occupied by woods and copses.

MANUFACTURES.—Manufactures have never held a very important place in the Netherlands. The absence of coal (of which there are only two mines in the province of Limburg) prevents this country from competing in manufacturing industries with those which are better supplied with this important factor. The most important industry in the Netherlands apart from agriculture is one not depending on the supply of coal, namely, the building of wooden ships, which is carried on to a great extent at various places. The subsidiary industries, such as the sawing of timber (especially at Zaandam), the making of ropes, and the weaving of sailcloth are also largely developed. Of textile industries that of linen is the most important, but silks and velvets as well as woollens and cottons are also produced in considerable quantity. The velvet known as Utrecht, it should be mentioned, is made at Amsterdam. The pigments of the Netherlands have an enormous sale, and the white paint there manufactured is said to be the best produced anywhere. There are well-known distilleries of brandy and gin at Schiedam, Delfshaven, and Rotterdam, and Amsterdam is famous for its liqueurs. Among the other products of more or less importance are paper, glass, and earthenware, refined sugar, &c.

FISHERIES.—The fisheries have formed an important branch of industry in the maritime provinces of the Netherlands from a very early period. A fisherman of Zeeland, of the second half of the fourteenth century, is credited with the invention of the plan of salting and packing herrings, and at that time, when the frequent fasts of all Christendom occasioned an enormous consumption of fish, this industry sufficed to enrich these provinces, where alone it was carried on. In 1610 the herring-fishing occupied 3000 boats and 50,000 men belonging to the Dutch provinces, and Dutch fishermen, though not now nearly so numerous, still carry on this fishery in summer in the north of Scotland, in autumn off the coast of Yarmouth, and from October to March on the shores of the Zuider Zee and the neighbouring islands.

COMMERCE AND COMMUNICATIONS.—The Dutch soon became a seafaring people, and Great Britain, with its costly railroads and immense commerce, is not a more wonderful spectacle than were the seven United Provinces in the seventeenth century, with their dikes, canals, and quays lined with shipping. The canals of the Netherlands are the principal means of communication, and afford together with the navigable rivers a greater proportion of inland navigation than any other country possesses. Their total length is about 1550 miles, that of the river navigation about 1140 miles; and the length of the two together is equal to about 1 mile for every 4½ square miles of surface. Their number is so great as to defy detailed description, every little village having its canals, while every considerable town is intersected by them. It will be sufficient, therefore, to mention only the chief. The North Holland Canal, between Amsterdam and the Helder, a distance of 40 miles, allows the largest ships to pass so as to avoid the intricate navigation of the Zuider Zee. The Winschoten Canal, also for ships, 18 miles long, connects the Dollart with Groningen; the Damster-Diep, of equal magnitude, runs from Groningen to the sea at Delfzijl. Harlingen, on the Zuider Zee, is also connected with Groningen by a great

canal. The Nieuwer Sluis unites Utrecht with Amsterdam, while the latter city also communicates with Rotterdam. The Ijmuiden Canal, 26 feet deep, and from 200 to 300 feet wide, connects Wijk, on the North Sea, with Amsterdam, and is itself connected by locks with the Zuider Zee. The construction of this canal, which was completed in November, 1877, shortened the distance between Amsterdam and the sea to about 15 miles. In winter the frozen surface of the canals offers convenient roads to skaters, and they are then travelled over with great speed.

The external commerce of the Dutch is chiefly carried on with Great Britain,

A Scene in Amsterdam.

Germany, and Belgium, Great Britain sending the greatest amount of exports, and Germany receiving the greatest amount of imports. Next after the trade with these countries the most important external commerce of the Dutch is that with their own possessions in the East Indies, particularly Java, a commerce which is continually increasing. In general the Kingdom of the Netherlands imports more than it exports of grain, raw materials, and manufactured articles. At the present day the shipping of the Netherlands is still important, though it carries less than a third of the transmarine commerce of the country. Its share of the river and canal traffic with foreign countries (Germany and Belgium) is more considerable, amounting to about two-thirds. There is about 1 mile of railway in the Netherlands for every 10 square miles of surface. More than half the railways belong to the state. The number of letters annually delivered in the kingdom is about sixteen per head of the population, and

the number of private telegrams about two for every three of the population. The system of weights and measures is the same as in France, but the monetary unit is a gulden of the value of about 1*s.* 8*d.*, divided into 100 cents.

RELIGION AND EDUCATION.—The members of all religious denominations possess by the constitution perfect liberty of conscience and social equality. A majority of the inhabitants belong to the Reformed Church, but the Roman Catholics make up more than a third of the population. In respect of education the Netherlands occupy a very high place among the nations of Europe. In 1857 a non-denominational primary instruction law was passed, and in 1878 this law was supplemented by another containing more stringent regulations with the view of making primary education more general. Thirty per cent of the expense of primary instruction is borne by the state and the remainder by the communes. Intermediate education is provided for by a higher class of schools in all the chief towns; and there is a polytechnical institution at Delft, besides various special training colleges at Amsterdam, Leyden, Delft, Breda, and elsewhere. There are three state universities, namely, at Leyden, Utrecht, and Groningen, and to these there has recently been added the municipal university at Amsterdam, which has equally with the other three the right of granting degrees.

PEOPLE.—The density of the population of the Netherlands was in 1878 about 313 to the square mile. The stock to which the people belong is the Teutonic, and their language (called by the English *Dutch*, but by the Dutch themselves *Nederduitsch*) is a Low German tongue, more akin to Anglo-Saxon and the Platt-Deutsch of North Germany than to the written language of modern Germany, which is of High German origin. The people of North and West Friesland speak a separate dialect called Frisian, the direct descendant of Old Frisian, a sister tongue to the Old Saxon, the common ancestor of Anglo-Saxon (and hence English), Dutch, and Platt-deutsch.

The Kingdom of the Netherlands is among the states of Europe which possess the greatest proportion of men of wealth, but like the rest of these states it presents striking contrasts of wealth and indigence. The paupers number not less than one in twenty of the whole population, and the desire to repress this evil has led to the establishment of several pauper colonies, chiefly in the province of Drenthe.

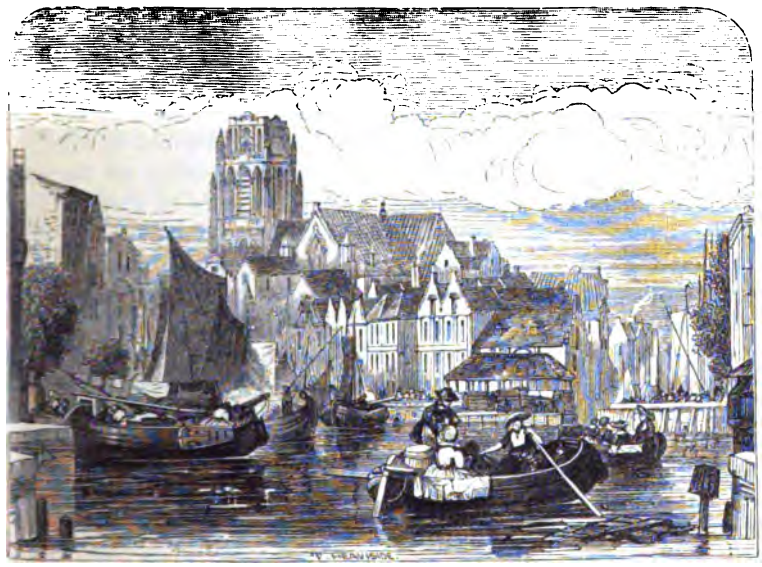
GOVERNMENT, DEFENCE, &c.—The Kingdom of the Netherlands, as now constituted, is a limited hereditary monarchy. The executive power is vested in the king, who shares also the work of legislation with the states-general. These consist of two chambers—the upper with thirty-nine and the lower with one member for every 45,000 of the population—who assemble for deliberation and despatch of business at the Hague. The members of the upper chamber are elected by the provincial councils from among the most highly-assessed inhabitants, and one-half of this chamber is renewable every two years; the members of the lower house are elected by ballot by all citizens paying at least 33*s.* of direct taxes, and not deprived of civil rights, and one-third of this chamber is renewable every three years. The government is strong, and the

administration in every department is simple and economical. The principal sources of revenue are much the same as in France, but among the minor sources is a state lottery. The largest head of expenditure is on account of the public debt, the capital of which has, however, been reduced by more than a fifth since 1846, in spite of the large expenditure incurred by the carrying out of great public works by the government. The Dutch army is maintained partly by conscription and partly by voluntary enlistment, and besides the regular army there is a militia composed of all the citizens of the country between the ages of twenty-five and fifty-five. There is also a colonial army, more than half of which is formed of natives of the colonies. The navy is actually manned exclusively by voluntary enlistment, although conscription may legally be resorted to in case of necessity.

The Royal Palace at the Hague.

CHIEF TOWNS.—Unlike the chief towns of Belgium those of the Kingdom of the Netherlands, if not of modern origin, have only in comparatively recent times acquired the importance they now possess. Amsterdam (302,000), the largest town in the kingdom and the commercial capital, was no more than a fishing village till the thirteenth century, and its prosperity as a seat of commerce dates only from the enfranchisement of the United Provinces and the decline of Antwerp in the sixteenth century. It stands in the province of North Holland at the point where the Amstel falls into the Ij, and occupies so marshy a site that piles have to be driven into the ground to provide foundations for the buildings in it. Besides other public buildings it contains a royal palace, formerly the townhall, built about 1648. At least a tenth of the inhabitants are Jews, and among these the Portuguese Jews form a section by themselves, and have acquired celebrity as lapidaries. Rotterdam (143,000), in South Holland, is first mentioned in the eleventh century, and has risen to its present position only within the last thirty or forty years. It stands at the mouth of the Rotte, on the right bank of the Maas, and some of the canals which intersect it are so deep as to admit of the largest vessels ascending to the heart of the town and unloading their cargoes directly into the warehouses. It is now the largest seaport in the kingdom, and has a line of packet-boats to New York, as well

as direct communication with Britain, France, Russia, and the Mediterranean. The Hague (108,000), the political capital of the kingdom, was originally only a hunting residence of the old counts of Holland. Its full Dutch name, S Gravenhage, means "the count's park." Besides being the seat of government, The Hague is the favourite residence of the Dutch aristocracy, and the pleasantest looking town in the kingdom; but of all Dutch towns it is that which has the least of a Dutch character. French is spoken in the town to a large extent, and in the theatres performances in French regularly alternate with performances in Dutch. The Hague is connected by a tramway as well as by canal with the celebrated watering-place of Scheveningen, about four miles



Church of St. Laurens, Rotterdam.

distant. Leyden (41,000), the *Lugdunum Batavorum* of the Romans, is the most ancient town in the kingdom. It is now chiefly famous for its university, founded by William of Orange in 1575 to commemorate the heroic defence of the town against the Spaniards in 1573-74. Utrecht (67,000), the *Trajectus ad Rhenum* of the Romans, is another ancient town, situated at the point where the Crooked Rhine divides into two branches, the Old Rhine and the Vecht. It also possesses a famous university, and it is the seat of the Dutch mint. The surrounding district is remarkable for the large number of country seats that adorn it.

HISTORICAL SKETCH OF HOLLAND AND BELGIUM.—In ancient times the part of the Netherlands lying south of the Rhine was included in the Roman province of Gallia Belgica. After the fall of the Roman empire the history of these provinces was very chequered. In the eleventh century the territory comprised in the present kingdoms of Belgium and the Netherlands formed a number

of counties, marquisates, and duchies corresponding more or less with the modern provinces. In the latter half of the fifteenth century all these had been acquired by the Duke of Burgundy; and by the marriage of Mary of Burgundy, daughter of Charles the Bold, to the Archduke Maximilian, son of the Emperor Frederick III., they passed to the house of Hapsburg, and in the first half of the sixteenth century they formed part of the immense dominion of the emperor Charles V. On the abdication of Charles in 1556 they passed to his son Philip II. of Spain, against whom the northern provinces revolted in consequence of religious persecution. In 1579 the provinces of Holland, Zeeland, Utrecht, Gelderland, and Friesland concluded the celebrated Union of Utrecht, by which they declared themselves independent of Spain. These formed themselves into a republic, and in 1580 were joined by Overijssel, in 1594 by Groningen, in 1648 by North Brabant. The southern provinces remained with Spain till 1596, when they passed by marriage to the Austrian branch of the house of Hapsburg. In 1633 they reverted to Spain, but in 1714 were restored to Austria by the Peace of Rastadt. The French Republic acquired them from Austria in 1797, and in 1814, after the troubles of the French revolutionary period, all the provinces both of Holland and Belgium were united by the Treaty of Paris to form the Kingdom of the Netherlands. This arrangement lasted, however, only till 1830, when the southern provinces, including Luxemburg, which, though under the sovereignty of the King of the Netherlands, was at that time a member of the Germanic Confederation, broke away and formed the Kingdom of Belgium. This severance was confirmed by the great powers in the Treaty of London in 1839; but in the settlement made by this treaty part of Limburg was given to Holland, and only part of Luxemburg was left with Belgium, the remainder being restored to the King of the Netherlands. It still continued to be, however, a member of the Germanic Confederation, but when that confederation was dissolved in 1866 it became an independent grand-duchy.

COLONIES AND DEPENDENCIES.—In addition to her European territories the Netherlands possesses a wide extent of colonies and dependencies in Asia and America, with which she carries on an extensive commerce, and which contribute materially to her greatness. Her chief Asiatic colonies are Java, Sumatra, Borneo, Celebes, and part of New Guinea or Papua; while in America she possesses Surinam or Dutch Guiana, and the West Indian islands of Curaçao, Saba, St. Eustatius, Aruba, Bonaire, and part of St. Martin. Estimated colonial population, about 24,000,000.

Summary.—TOTAL AREA AND POPULATION OF THE KINGDOM OF THE NETHERLANDS, WITH ITS COLONIES AND DEPENDENCIES, BUT EXCLUDING THE GRAND-DUCHY OF LUXEMBURG:—

	Area in sq. m.	Population.	Date of Acquisition.
Europe,	12,728	3,981,887	
Asia,	630,000	24,000,000	1595–1879
America,	60,175	110,000	1580–1638
Total (in round numbers),	700,000	28,000,000	

LUXEMBURG.

The grand-duchy of Luxemburg, of which the King of the Netherlands is grand-duke, lies between Prussia, France, and Belgium, and has an extreme length of 51 miles, and an extreme breadth of 34 miles, with an area of 999 square miles. It forms part of the plateau of the Ardennes, and has a rugged and mountainous surface, covered in many parts with heaths and morasses, though in general well wooded. Its drainage belongs entirely to the basin of the Moselle. The cereals grown do not suffice for home consumption, but great numbers of cattle, sheep, and horses are reared. Iron ore is obtained in large quantity, and is exported to Belgium and Prussia. Timber is also a large export. The inhabitants are of German origin, and speak German, though French is almost universally understood, and has been adopted as the official language. They are for the most part zealous Roman Catholics. The number of the population in 1875 was 205,158, or about 205 to the square mile. The legislative authority is vested in a chamber of deputies of 41 members, elected by the people for six years, one half being renewable every three years. The system of money, weights, and measures is the same as that of France. As regards its commercial affairs Luxemburg belongs to the Zollverein or Customs-union of Germany. The town of Luxemburg, the capital of the grand-duchy (population 16,000), is situated in the south of the territory, and is composed of a high and a low town, the former occupying a steep and rugged rock 200 feet above the latter. It was formerly one of the strongest places in Europe, and till 1867 Prussia had the right of keeping a garrison in the fortress, but in that year that right was renounced in the treaty of London on condition that the fortifications should be demolished.

DENMARK.

DENMARK (Danish, *Danmark*) is a northern kingdom of Europe, composed of a peninsular portion, and an extensive archipelago, lying east of it, with a few scattered islands on its west side. The peninsular portion is composed of Jutland, and has an extreme length, north to south, of 185 miles, with an extreme breadth of 108 miles.

POLITICAL DIVISIONS.—For administrative purposes Denmark is divided into eighteen provinces or districts besides the city of Copenhagen. Seeland (Danish, *Sjælland*) with the adjacent islands is divided into five provinces (exclusive of the city of Copenhagen), namely, Copenhagen province (Danish, *Kjöbenhavn*), Frederiksborg, Holbek (with Samsö), Sorö, and Præstö (with Möen). Fyen with the adjacent islands is divided into two provinces,—Odense (with Ærö), and Svendborg (with Taasinge and Langeland). The islands of Falster and Lolland with some smaller islands make up the province of Maribo; and the remote

islands of Bornholm and Ærteholme form another province by the name of the first. The remaining nine provinces, Hjörring, Thisted, Aalborg, Viborg, Randers, Aarhus, Veile, Ringkjöbing and Ribe, make up Jutland. The area and population of the kingdom of Denmark are as follows:—

	Area in square miles.	Population, 1870.	Estimated pop., 1878.	Pop. per sq. m. in 1878.
Copenhagen,	8	181,291	205,000	213
The islands,	5,026	815,331	869,000	
Jutland,	9,755	788,119	866,000	89
	14,789	1,784,741	1,940,000	131

PHYSICAL FEATURES.—Denmark is a very low-lying country, there being no elevation of any consequence throughout the whole kingdom. The greatest height is attained on the eastern side of the peninsula, though even there it never exceeds 550 feet. In respect of **geological structure**, all the rocks belong to the upper series of the secondary, and to the tertiary formation, and have been deposited from water in regular strata. The rock most fully developed is the chalk, of which several distinct species have been recognized. Above the chalk is an extensive boulder formation, which stretches over a considerable part of the country, and contains seams of lignite. Immediately above it, and sometimes intermixed with it, are thick beds of clay and marl. Where it prevails, as in Seeland and the east of Jutland, the soil is generally fertile; but in the other parts of the country, and especially in the north and along the west coast of Jutland, where it is supplanted or overlaid by deep beds of sand, the country has an extremely desolate aspect, presenting little else than alternations of sand and heath, while its whole west coast is rendered almost uninhabitable by the drift-sand, which has formed an almost uninterrupted line of sterile downs, called *Klitten*, extending from Cape Skagen to Blaavands Hook, a distance of nearly 200 miles. Along parts of the coast of Jutland are extensive flats or plains, which have been wrested from the sea, and which are protected from its encroachments by huge dykes, as in Holland. The only considerable stream is the Guden in north Jutland, about 90 miles long. The lakes in Jutland are pretty numerous, and there are several also in the larger islands; but they are all small. The most remarkable of the physical features of Denmark is its **lagoons** or fiords, winding inlets of the sea, that penetrate far into the land. The largest of these is the Lymfiord, or Liim Fiord, in Jutland, which entering the land in the Cattegat, near lat. 57° N., winds its way nearly through the peninsula, and is separated from the North Sea merely by a narrow strip of land, which storms have ruptured in one or two places.

CLIMATE.—The climate of Denmark is very humid and at the same time remarkably temperate for so northerly a region; both circumstances being the result of the lowness of the land and of its proximity to the sea on all sides. The winters are seldom severe, but, on the other hand, the heat of summer is sometimes excessive. Violent winds are frequent, and rains and fogs prevalent, but the climate is on the whole favourable to vegetation. A failure of the crops from want of moisture seldom occurs, the loamy soils enduring its absence

for a long time without injury, while those of a sandy nature rarely want it for any length of time.

PRODUCTIONS.—Fully three-fifths of the population of Denmark are employed in **agriculture.** The land is greatly subdivided, as the law interdicts the union of small farms into larger, and encourages the division of landed property. The kinds of grain most largely cultivated are oats, barley, and rye, those less grown wheat, buckwheat, spelt, and millet. Large quantities of the first three grains are exported annually. Potatoes, which were introduced into Denmark early in the present century, are now very generally cultivated. Red and white turnips are also grown, and various kinds of vegetables in considerable quantity. Herbage plants and grass now receive great attention. Beans, pease, and tares are also extensively cultivated throughout the whole country, and form an important article of food. Flax, hops, tobacco, and colza, as well as madder, lavender, and mustard-seed, are likewise grown to a greater or less extent. But cattle-breeding, grazing, and the dairy engage the greatest share of the farmer's attention in Denmark; large numbers of cattle, besides immense quantities of pork and smoked or hung beef, being annually exported from the country. The rearing of horses is extensively carried on. The Danish horses have long been famous for their strength, symmetry, docility, and bottom, and are especially adapted for cavalry. The old Danish breed is found chiefly in Jutland. Those from the islands are said to be of Tartar descent, and are small, but strong and active. Sheep-shearing is on the decline in Denmark, although considerable improvement has of late taken place in this branch of husbandry, particularly as regards the quality of the wool. Large numbers of hogs are reared in the vicinity of the woods in East Jutland. The rearing of bees occupies a large share of attention, particularly in the island of Fyen, and this also is the part of the kingdom best adapted for the production of fruit. Wild fowl, including the eider-duck, are numerous.

Woods of considerable extent yet exist in the islands and on the east side of Jutland. The remains found in the peat-bogs of Denmark show that in the earliest times (in the stone age) the Scotch fir was the prevailing tree in the country, and that in the bronze age this tree had given place to the oak. This latter tree is still found to some extent, but it has been in a large measure supplanted for at least eighteen centuries by the beech, which, according to Sir Charles Lyell, flourishes nowhere in the world more luxuriantly than in Denmark. In recent times pine and fir have been extensively planted in the middle and west of Jutland. In all, less than three-fourths of the soil of Denmark is profitably occupied. Of this portion upwards of two-fifths is under the plough, upwards of a half in meadow and pasture land, and about one-sixteenth under wood. The **mineral resources** of Denmark are almost confined to some coal deposits in the island of Bornholm.

MANUFACTURES.—As might be expected from the fact that Denmark possesses neither fuel nor water-power, its manufactures are comparatively insignificant, and do not comprise any peculiar or national manufacture. There are, however. one or two articles which have attained a considerable reputation.

These are the woollens and earthenware of Jutland, the former a domestic manufacture, the wooden clocks of Bornholm, and a superior kind of stove made in Copenhagen. The manufacture of paper is pretty extensive, and has of late years been greatly improved and extended. There are also iron-foundries, sugar-refineries, some extensive tanneries, and many distilleries. Randers in Jutland, and Odense in the island of Fyen, were formerly celebrated for the manufacture of gloves; but the peculiar kind of leather from which they were made, and to which their excellence was due, is now prepared in other countries.

FISHERIES.—The fisheries were formerly a more important branch of national industry than now. Two causes have contributed to this result—the extension of agricultural pursuits and the decay of the herring fishing, which has fallen off greatly within the last forty years. The quantity now taken does not suffice for the consumption of the country. Next to the herring the turbot, torsk, and salmon are the most abundant sorts of fish. Oyster banks occur on the east coast of Jutland, near its northern extremity, and near the island of Lessö. Fish ponds were at one time very general over the country, and were profitable. The seal fisheries of Denmark are considerable, the principal station being the island of Anholt.

COMMERCE AND COMMUNICATIONS.—The commerce of Denmark is carried on chiefly with Great Britain, Germany (especially Schleswig-Holstein), Norway, Sweden, and Russia, Great Britain possessing the largest share in quantity, and Germany in value. The chief imports are woven fabrics and other manufactured articles, metals, timber, colonial wares, wine, tobacco; the chief exports grain and flour, live stock, dairy produce, wool, beer, fish, and oysters. At one time Denmark derived a considerable revenue from the shipping of other nations passing through the Sound. All foreign vessels except those of Sweden passing Elsinore (or Helsingör, as it is called in Danish), which lies under the protection of the Castle of Kronborg at the narrowest part of the Sound, formerly had to pay dues for the maintenance of lights and landmarks on the Cattegat and neighbouring coasts; but in 1857 these dues were commuted for a single payment by the maritime nations of Europe, Britain's share amounting to £1,125,206, about one-third of the whole. The principal canal is the Danneskjold canal in Seeland. Recently a short canal has been constructed to facilitate the passage of sailing vessels from the east to the west part of the Liimfiord. Jutland has only two north and south roads and two cross roads, but the islands are well furnished in this respect. The railways, more than half of which belong to the state, have a total length equal to about one mile for every 17 square miles of surface. The number of letters annually carried by the post-office is equal to more than ten per head of the population, and the number of telegraphic despatches (including those in transit) is equal to about one for every two of the population.

MONEYS, WEIGHTS, &c.—Since the 1st of January, 1875, the unit of the Danish monetary system has been the *krona* or crown, equal to 1s. $1\frac{1}{3}d.$ or $\frac{1}{18}$th of a pound sterling, or one-half of the old rigsdaler. The krona is divided into 100 *öre*. The commercial pound weight is heavier than the English weight of

that denomination, 100 lbs. Danish being equal to 110¼ lbs. avoirdupois. The principal measure used in Denmark for corn is the barrel or *tönde*, which contains 7776 Danish cubic inches, and is equal to 3·8 imperial bushels. The *viertel*, used for wine and liquor, is equal to 1·7 English gallon. The long measure is the Rhineland foot, which equals 12·356 English inches, or 1·03 of an English foot. The Danish mile is 4·684 English miles.

RELIGION AND EDUCATION.—The Lutheran is the established religion, but unlimited toleration is extended to every sect. The government is episcopal, and the bishops are nominated by the crown.

At the head of the educational institutions stand the University of Copen-

Castle of Kronborg, and Town of Elsinore.

hagen, and the Holberg Academy at Sorö. In the provincial towns are gymnasia or colleges, in which the learned languages are taught, and a large number of middle schools, for the children of the trading and higher working classes. Primary instruction is given at the public expense in the parochial schools which are spread over the kingdom. Education is very generally diffused, and the fondness for reading which prevails is attested not only by the great number of parochial and other associations for the purpose of procuring works in the various branches of literature, and lending them out among the members, but also by the number of books which individuals in the humblest walks of life, both in town and country, manage to collect for their own private use. It is rare to meet with any one who cannot both read and write.

PEOPLE, &c.—The population of Denmark is composed almost exclusively of Danes, with a few thousand Jews and others. The Danes have regular and well-formed features, fair or brownish hair, and blue eyes, with muscular frames; they are kind-hearted, honest, and simple-minded, and continue to maintain their ancient reputation for being bold and hardy seamen. The fact that the kingdom

is composed so largely of islands while the continental portion is intersected by numerous sea-arms necessitates a certain amount of acquaintance with seafaring in many of the agriculturists, and hence tends materially to keep up the maritime spirit. The Jews, who are of German descent, are confined to Copenhagen and a few other towns. The food of the lower classes consists chiefly of oat-cakes, rye-bread, fish, and cheese. All classes are noted for their hospitality, which is indeed a characteristic of the nation. Within the last hundred years an immense improvement has taken place in the condition of the Danish peasantry. Towards the close of last century they were as a class physically and mentally degraded, living in a state of serfdom, and oppressed by the nobles who owned the land. But at that time a better state of affairs was initiated by the crown-prince of Denmark, afterwards Frederick VI. He began by abolishing on the crown-lands all those institutions which he regarded as prejudicial to the peasant, and in subsequent years various measures were adopted for the whole country with a similar object. Every facility has been given for the acquisition by the peasant of the land he cultivates, with the result that at the last census it was found that out of 280,000 families living in the country districts of the kingdom about 170,000 were owners of land. There is still, however, a considerable number of large landed estates belonging either to the nobility or to corporations, and the castles belonging to the owners of these large domains scattered throughout Denmark form a striking feature in Danish landscapes. The condition of the population generally is now eminently satisfactory, as is proved by the fact that only about 3 per cent of the population are paupers. The Danish language belongs to the Scandinavian branch of the Teutonic family of languages, and is therefore a sister of the Swedish and Norwegian, and more distantly related to the German, Dutch, and English.

GOVERNMENT AND DEFENCE, &c.—The government of Denmark was originally an elective monarchy, the right of election being vested in the three estates, the nobles, the clergy, and the commons; but in 1660 the monarchy was made hereditary, and in 1661 by the Act of Sovereignty absolute power was conferred on the monarch. The power thus conferred was used with singular moderation; nevertheless in 1848, when, consequent on the sudden changes in France, almost the whole continent of Europe was convulsed, the Danish constitution was greatly modified, and Denmark now belongs to the hereditary constitutional monarchies. By a charter finally adopted by the king and diet, June 5, 1849, it is declared that the executive power is in the king alone; the legislative, in the king and diet jointly. The diet consists of the Landsthing and the Folkething—the former a kind of senate or upper house, and the latter a house of commons. The Landsthing consists of sixty-six members, of whom twelve are nominated for life by the crown, and the rest elected indirectly by the people for a period of eight years. The fifty-four members of the latter class are chosen by bodies composed partly of the largest tax-payers in the country districts, partly of deputies of the largest tax-payers in the cities, and partly of deputies from all the citizens possessing the franchise. The members of the Folkething, 102 in number, are elected by householders above twenty-five years of age, and

hold their seats for three years. A peculiarity in the Danish administration of law consists in tribunals of conciliation established in 1795, with the view, as the name implies, of reconciling parties by amicable arrangement, without going into court. In the great majority of cases the mediation is said to be successful. The principal branches of revenue are customs and excise duties (on sugar and spirits), direct taxes (on land, houses, and rank), railways, crown domains, and the interest of a reserve fund. A state lottery is also among the sources of revenue. The principal heads of expenditure are the ministry of war and the interest on the national debt.

According to a law passed in 1867 the army consists of all the able-bodied young men of the kingdom who have arrived at the age of twenty-one years. The time of service is eight years in the regular troops, and afterwards eight more in the reserve. Every corps has to drill for thirty to forty-five days every year. The navy is recruited by conscription from the coast population.

The Exchange, Copenhagen.

CHIEF TOWNS.—The only important town in Denmark is the capital, Copenhagen (Danish, *Kjöbenhavn*), which in 1878 was estimated to have a population of 205,000, or, including the suburbs, 250,000. It is situated on the east coast of Seeland, opposite the small island of Amager, which serves as the market-garden of the city. The channel that separates the two forms on the one side the harbour of Copenhagen, and on the other side the safest naval station in the Baltic. Though dating from the twelfth century, Copenhagen has a quite modern aspect in consequence of its having been more than once destroyed in large part by fire, and in 1807 by bombardment. Since this last event it has been rebuilt with great regularity, and possesses wide and handsome streets intersected by several canals. The city proper was formerly surrounded by walls, and it is still defended by forts and a strong citadel in the north-east. There are four royal palaces in the city and its environs, and among the various interesting museums which the city contains there is one erected between 1839 and 1848 to contain a collection of Thorvaldsen's works, and the collections of pictures, books, cameos, &c., which he had formed and bequeathed to the city, and also to receive the remains of Thorvaldsen

himself. The university, founded by Christian I. in 1478, possesses a fine library containing above 260,000 volumes and 4000 manuscripts, among which are many rare Scandinavian specimens, and occupying a modern building, admirably arranged and fitted up for its reception. Still more valuable is the Royal Library, founded by Frederick III. in 1665, containing about 550,000 volumes, and 25,000 manuscripts, among them Rask's celebrated Sanskrit and Singalese collection. Besides being the seat of government, Copenhagen is the centre of the domestic and foreign commerce of Denmark. Its manufactures are unimportant. Copenhagen is first mentioned as a fishing hamlet in 1043. In 1168 Bishop Axel founded a haven and erected a fort where the citadel now stands as a place of refuge against the northern pirates. It then bore the name of Axelhuis, but it soon after rose to importance, and acquired its present name, signifying Merchants' Haven. It was made the capital of Denmark in 1443. The portion of the city on the island of Amager is called Christianshavn. To the west of Copenhagen, at the head of one of the creeks of the Isefiord, lies Roeskilde (5000), the ancient capital of Denmark, and the residence of the kings till 1443. Its cathedral, dating from the eleventh century, is the finest ecclesiastical edifice in the kingdom. Odense, in the north of the island of Fyen, is the oldest town in Denmark, and though containing only 17,000 inhabitants is the second town in the kingdom in point of size. It also possesses a fine cathedral, and its people are said to speak the purest Danish. The three largest towns in Jutland are Aarhus (15,000) in the east, a flourishing port; Randers (11,000), an old commercial town on the fiord of the same name at the mouth of the Guden; and Aalborg (12,000), on the south side of the Liimfiord, noted as a seat of commerce as early as 1070, and long the chief place of export for native products. Viborg (6000), in the middle of the peninsula, is the meeting place of the provincial states of Jutland.

HISTORICAL SKETCH.—The origin of the kingdom of Denmark may be referred with sufficient propriety to the second half of the ninth century, when Gorm the Aged united the islands with Jutland. The fluctuations in the power of the kings of Denmark in the subsequent centuries till near the end of the fourteenth are too numerous to be detailed here. Towards the close of the fourteenth century the crown of Denmark was united with those of Norway and Sweden, and this union continued in the case of Norway down to the beginning of the present century. The union with Norway took place in consequence of the marriage of Margaret, daughter of Waldemar, with Hako, King of Norway. Olaf, the son of Margaret and Hako, succeeded to the crown of Denmark in 1376, and to that of Norway in 1380; on his death in 1387 Margaret was recognized as ruler of the two kingdoms; and in the following year the Swedes also elected her as their queen after expelling their own king, Albert of Mecklenburg. In 1397 Margaret brought about what is known as the Union of Calmar, in which it was declared that the three Scandinavian kingdoms should be united for ever. About fifty years later, however, the Swedes again elected a king of their own, and though the Danes made many attempts to recover Sweden, none of these was permanently successful. They retained, nevertheless, till 1658 the southern point

of Sweden, which had always been regarded as part of the kingdom of Denmark. In the treaty of Vienna in 1814 Norway was taken from Denmark and annexed to the Swedish crown, and Denmark was also obliged to cede the island of Heligoland to Britain. On the other hand, Denmark was allowed to retain the former Norwegian dependencies of Iceland and the Faroe Isles (the Orkney and Shetland Islands had previously, in 1469, passed by marriage to the crown of Scotland), and it also received the Prussian duchy of Lauenburg. This duchy was then united with the German duchies of Schleswig and Holstein, the history of which had from a very early period been associated with that of Denmark, and which at that time both belonged to the Danish crown, the former having been annexed to it in 1720, the latter in 1723. In 1864 all these duchies were wrested from Denmark by the allied Prussians and Austrians, in consequence of a dispute as to the succession which arose on the extinction of the direct line of the royal house of Denmark with the death of Frederick VII. in 1863; and two years later the duchies were incorporated with Prussia.

COLONIES AND DEPENDENCIES.—The following table gives the area and population of all the Danish dominions, with the date of acquisition of the colonies and dependencies:—

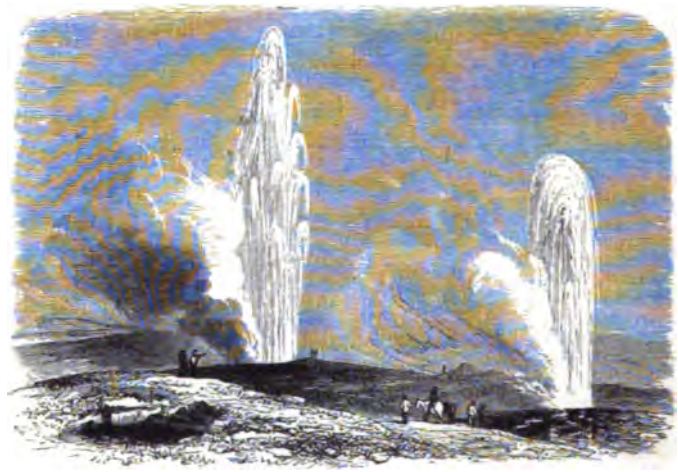
	Area in square miles.	Estimated pop. in 1878.	Date of Acquisition.
Kingdom of Denmark,	14,789	1,940,000	
Faroe Islands,	515	11,000	1380
Iceland,	39,566	72,000	1380
Greenland (territory free of ice),	25,000	9,800	1721
W. India Islands—St. Thomas, St. John, Santa Cruz,	140	37,600	1671; 1684; 1733
Total (in round numbers),	80,000	2,070,000	

EUROPEAN DEPENDENCIES.

ICELAND (Danish, *Island*) is an island belonging to Denmark, situated between the North Atlantic and the Arctic Oceans, and in respect of proximity more properly part of the western than of the eastern hemisphere, being only 250 miles from the south-east coast of Greenland in the former, and about 600 miles west of Norway in the latter. Its greatest length, east to west, is 320 miles; central breadth, about 200 miles; area, 566 square miles. The water along the coast is generally very deep, and the bays furnish a great number of natural harbours, with good anchorage and complete shelter; but the navigation is rendered dangerous by vast numbers of rocky islets which line the shores. The best and most frequented harbours are that of Reikjavik on the south-west, and that of Eya on the north.

The interior of the island has for the most part a very wild and desolate appearance. It is covered by lofty mountain masses of volcanic origin, many of them crowned with perpetual snow and ice, which, stretching down their sides

into the intervening valleys, form immense glaciers. Glaciers cover a surface of upwards of 4000 square miles, and exist in all the mountains above 4000 feet in elevation. These icy mountains, which take the common name of Jökull, have their culminating point in Oräfajökull, which is situated near the south-east coast, and has a height of 6409 feet. Not only is the structure of these mountains volcanic, but in several of them (the most celebrated of which is Mt. Hecla) the volcanic agency is still active, and eruptions of the most fearful description have repeatedly occurred within the last four centuries. Lava covers a large portion of the island. Other remarkable specimens of volcanic agency are still witnessed in the numerous hot springs or **geysers** scattered throughout the island, but found more especially in the south-west to the north-east of Reikjavik, where, from one of the principal geysers, jets of water, stones, and mud are thrown up at intervals to heights varying from 100 to 200 feet. The hot springs are sometimes used for economical purposes; food is dressed over them, and in some places huts are built over small fountains to form steam-baths. Among the other effects of volcanic agency are the basaltic columns of the Bay of Stapi in the west, near Snäfellsjökull, and the cavern of Surtshellir, more than a mile long, situated a little to the west of Eyriksjökull. Roads are wanting, and owing to the great irregularity of the surface cannot be made. The immense reservoirs of snow and ice furnish inexhaustible supplies to numerous **lakes** and **rivers**, the latter of which sometimes attain in summer a mile in breadth. Of the lakes the most celebrated is the Thingvallavatn, east of Reikjavik, lying on a grassy plain nearly isolated by two tremendous chasms in the surrounding lava, and intersected by numerous fissures, some of which are filled with water of the same crystalline purity as that of the lake. This plain was formerly the meeting-place of the Althing or Icelandic parliament. The only **minerals** worked are lignite, cryolite, and the well-known double-refracting spar, for which the island has long been famous. The want of fuel, which is severely felt, is sometimes supplied by drift-wood floated to the northern shores by the Gulf Stream and the polar currents.



The Great Geyser, Iceland.

The **climate** is mild for the latitude. At Reikjavik, on the south-west coast, the mean temperature of the year is 40°, that of summer 56°, and that of winter about 29° 30′. The air is damp and misty, the weather is extremely variable, and storms and hurricanes are not unfrequent. The prevailing winds are the north and the north-east. In the southern part of the island the longest day is twenty hours, and the shortest four hours, but in the northern extremity the sun at midsummer continues above the horizon a whole week, and during a corresponding period in winter it never rises. The average duration of human life is shorter here than in Denmark. **Vegetation** is confined within narrow limits. The flora comprises mosses and a few shrubs. The only trees are the service-tree and the birch, which have a very stunted growth. Forests, however, formerly abounded. Grain appears to have been at one time very partially cultivated, but is not now attempted to be grown. Cole, potatoes, turnips, radishes, and similar roots thrive tolerably well; but by far the most valuable crop is grass, on which considerable numbers of cattle, sheep, and horses are fed. The last, though small, are strong and active. Another domestic animal of great value, the reindeer, though not introduced before 1770, has multiplied greatly, and forms large herds in the interior; but their presence there is of little importance. Wild fowl, including the eider-duck, whose down forms an important article of commerce, and the wild swan, whose feathers are exported, are very abundant; the streams are well supplied with salmon, and valuable fisheries of cod, seals, torsk, and herrings are carried on on the coasts. **Manufactures** are entirely domestic, almost every family possessing within itself the means of supplying its most necessary wants, and occasionally furnishing a surplus, chiefly of coarse woollens, mittens, stockings, &c., to be disposed of at the markets of the principal villages. The principal exports are wool, oil, fish, horses, feathers, worsted stockings and mittens, sulphur, and Iceland-moss.

The inhabitants are of Scandinavian origin, and speak a Scandinavian dialect, the original Norse, which is still maintained in great purity. They have a tall, manly form, open countenance, florid complexion, and flaxen hair. They are simple in their manners, having no distinctions of rank, pure in their morals, strongly attached to their homes, and very hospitable. Their houses are low structures, chiefly composed of drift-wood and lava; butcher-meat and bread seldom appear at their tables, fish, some butter, milk, and preparations of milk constituting their staple food. Their intellectual capacity is of a superior order. Education is generally diffused, and almost every one is able both to read and write. Far higher attainments are not uncommon, and travellers have sometimes been surprised by their guides addressing them in Latin. In external profession the people are Lutherans, the whole island forming a single bishopric. The governor of the island is appointed by the king of Denmark, who also nominates one-sixth of the Althing or legislative assembly, the remaining members being elected by the people themselves. The Althing meets at Reikjavik, a small town in the south-west of the island, built almost entirely of wood. It is the only place in the island that keeps up a regular communication with the outside world; and, though containing only about three

thousand inhabitants, it possesses a literary and learned society, an observatory, two small libraries and three journals; and on a tongue of land a little to the south there is a college. The only town or village in the north of the island is Akreyri, at the head of the Eyafiord. Iceland was settled by Norwegians in the latter part of the ninth century, and having passed with Norway to Denmark

Icelanders.

in 1380, remained in the possession of the latter country when Norway was disjoined from it in 1814.

THE FAROE ISLANDS (in Danish *Fär-öer*, that is, Sheep Islands) are a group of islands belonging to Denmark lying between Iceland and Shetland. They are twenty-five in number, with an area of 515 square miles. Seventeen are inhabited. In general they present steep and lofty precipices to the sea, and their surface rises towards the interior, culminating in the largest island, Strömö, in a peak 2800 feet high. The weather is very variable, but the climate is milder than the latitude might indicate; for while the summer lasts only during the two months of July and August, the frosts of winter last only one month. There is no wood, but plenty of excellent peat, and in one of the islands also coal. Barley is the only cereal that comes to maturity, but turnips and potatoes thrive well. The wealth of the inhabitants, numbering about 10,000, is chiefly derived from sheep-feeding, fishing, and bird-catching, the feathers of sea-fowl forming an article of trade. Thorshavn, in Strömö, with about 1000 inhabitants, is the residence of the Danish governor and the seat of the local assembly (Lagthing). The inhabitants send one representative to the Danish Landsthing and one to the Folkething. Like Iceland the Faroe Islands were originally settled by Norwegians, and the people speak Old Norse.

GREENLAND. See ARCTIC REGIONS.

NORWAY.

Norway (Norwegian, *Norge;* Swedish, *Norrige* or *Norrike*, North Kingdom) is a country in the north of Europe, subject to the King of Sweden, but otherwise independent. It is bounded on the north-east by Russian Lapland, and east by Sweden, and washed on all other sides by the sea. Measured from the Naze or Cape Lindesnæs on the south, to a point adjoining the North Cape, its length is about 1080 miles; its greatest breadth, measured nearly in the parallel of 60°, is about 275 miles, but towards the north it narrows so much as to be in some places not more than 20 miles; area, 120,729 square miles.

DIVISIONS.—For administrative purposes it is divided into six *stifts* or dioceses, subdivided into twenty provinces (*amts*). The following table gives the area and population of the several stifts as well as of the whole of Norway:—

	Area in Sq. Miles.	Population, 1875.		Area in Sq. Miles.	Population, 1875.
Christiania, ...	10,085	489,915	Throndhjem, ...	19,550	271,575
Hamar, ...	19,724	236,432	Tromsö, ...	43,115	182,245
Christianssand, ..	15,516	342,672			
Bergen, ...	14,870	284,061	Total,.....	122,860	1,806,900

PHYSICAL FEATURES.—The coast consists for the most part of bold precipitous cliffs, and is remarkable both for the innumerable islands by which it is lined, and the bays or fiords which cut deeply into it in all directions, but far most frequently from west to east, in the direction in which the great ocean wave is dashed upon it. The number of islands makes the navigation dangerous, but that of the fiords gives it unusual facilities, not only making it easy to penetrate into the interior, but also furnishing an almost uninterrupted series of excellent natural harbours of refuge. The northern coasts especially present a succession of scenes of indescribable grandeur and variety, towering and strangely-shaped rocky peaks, headlands, islands, and precipices, with frequent snow-fields and glaciers, and bright green verdure on the shores and lower elevations, combining to form pictures unsurpassable in their kind.

The mountains of Norway, though they extend throughout the country from Cape Lindesnæs, or the Naze, in the south, to the North Cape in the north, nowhere assume the form of a continuous chain or range. The Kjölen or Kœlen Mountains, which extend from Throndhjem to the latitude of 70°, make some approach to this conformation, though they have no great claim to the name either. The mountain masses over the greater part of the country assume the form of a series of plateaux, or table-lands of great breadth, generally more or less connected together, though sometimes separated by deep and narrow valleys. It is to these tabular masses that the term *fjeld* or *field*, so common in Norway, is applied, as in Dovre Fjeld, Hardanger Fjeld, &c. They are often so level, that, to quote Prof. J. D. Forbes, "upon what may almost be called their

summits a coach and four might be driven along or across them for many many miles did roads exist, and across which the eye wanders for immense distances, overlooking entirely the valleys, which are concealed by their narrowness, and interrupted only by undulations of ground, or by small mountains which rise here and there with comparatively little picturesque effect above the general level." Some of the mountains rise to an absolute height of more than 8000 feet, and many of them are more than 6000 feet high. The highest summits in Norway belong to the Jœtun Fjeld (Giant Mountains), or Sogne Fjeld, a congeries of elevated masses, glaciers, and snow-fields, situated near the inner end of the Sogne Fjord, in the centre of the southern division of the kingdom. Here rise Galdhœpig to the height of 8400 feet, the Glitretind to that of 8384 feet, and Skagastolstind to that of 7879 feet. Lovers of scenes of savage grandeur will here find ample gratification for their tastes. Westwards from the Jœtun Fjeld lies the huge snow-field called the Jostedalsbræ. This has a length of 90 to 100 miles, and is the greatest mass of eternal snow not only in Norway, but in all Europe. It covers the tops of the mountains and sinks into the hollows between them, thus following the configuration of the country, while it sends down numerous glaciers into the adjoining valleys. Twenty-four glaciers of the first rank have been counted, all owing their origin to the Jostedalsbræ. The greatest height of this snowy mass is 7050 feet. In general the valleys are short and abrupt; and the streams, dashing down impetuously through rocky gorges, form numerous cascades; while the fiords, overhung by lofty precipices or towering forests, and the deep and extensive lakes embosomed among the mountains, furnish Alpine scenes of the wildest magnificence.

Mount Hornelen, east end of Bremanger Island.

RIVERS AND LAKES.—The short distance at which the western slope of the above plateau lies from the western coast gives rise to an immense number of minor streams, which proceed directly to the shore or the fiords which penetrate it. On the eastern slope again the streams do not properly assume the character of rivers till they have run a considerable part of their course in Sweden. The few important rivers that Norway can claim as exclusively her own have a southerly direction in accordance with the general slope already

referred to, and discharge themselves into the Skager Rack; of these the most deserving of notice are the Glommen (with a course of about 400 miles), and its affluent the Lougen; the Bægna, Laagen, and the Hallingdal or Drammen. Often they form in their short course lofty waterfalls, and in the Geiranger Fjord, in the north of the province of Bergen, a magnificent series of falls is produced by a small stream precipitating itself directly into the inlet. **Lakes** are extremely numerous throughout the country, but are in general small. They are usually long, narrow, irregularly-shaped sheets of water occupying the bottom of a valley. The Miösen Vand has a length of some 60 miles and a breadth of 15, with an area of 140 square miles. It is very narrow for a considerable distance at both extremities, but opens up in the middle to a broad expanse of water, in which is situated the fertile island of Helgeö, or Holy Island.

Mount Kilhorn, Northern Plateau of Norway.

GEOLOGY AND MINERALS. The prevailing rocks of Norway are gneiss and mica-slate, of which all the loftier mountains are composed. Granite is of comparatively rare occurrence. On some of the plateaux blocks of conglomerate occupy a large part of the surface. Porphyry, argillaceous schist, and limestone occur, but in very limited quantities, and rocks of volcanic formation are rare.

The minerals are both numerous and abundant; and where the means of transport exist can generally be worked to great advantage, both from the facilities which the nature of the ground affords for draining mines without expensive engines, and the inexhaustible supplies of fuel furnished by the forests. The most important metals are iron, copper, silver, nickel, and cobalt, all of which are worked to a limited extent. The only other minerals worthy of notice are chrome, alum, and marble.

CLIMATE.—That the climate of Norway must on the whole be severe seems necessarily to follow both from its high latitude and the elevation of its surface. Nearly one-third of the whole country is situated within the frozen zone, and a part of it within the region of perpetual snow; but the great extent of its sea-

coast, and, as mentioned in the general account of Europe, the exposure of the coast to warm currents and warm winds from the south-west, contribute to modify the temperature, and make it milder than might have been anticipated in the circumstances. The influence of these conditions is apparent in the fact that the harbours on the west are never blocked up with ice; while in places more inland, though much farther south, as at Christiania, this regularly happens. Rains and fogs on the west coast are frequent, and Bergen in particular has the reputation of being one of the rainiest spots in Europe.

AGRICULTURE, &c.—Of the whole area of 123,000 square miles only about 1000 are under the plough. The principal cereal crop is oats, after which come barley, rye, and wheat, which last is, however, grown only to a very small extent. Barley ripens at 70° of latitude; rye is successfully cultivated up to 69°; oats to 68°; but wheat not beyond 64°, and that only in the most favourable seasons. Nearly every farm has a small patch of flax and hops. Potatoes form a very valuable crop, and are grown with success even in Finmark. Most of the farms in Norway are the property of those who cultivate them, and there are very few large estates in the country. A Norwegian farm consists generally of three portions, the in-field or home portion, the out-field or *mark*, and the *sæter*. The first portion is inclosed, and produces the grain and potatoes and the best hay; the second portion is mainly pasture-land, though part of it is sometimes fenced and made to produce grain crops, while hay is also obtained from it. It is often only partially cleared, having bushes and small wood sprinkled over it. The sæter is a large stretch of mountain pasture situated up in the fjelds, often at the distance of 30 or 40 miles from the main farm; to it the cattle are sent for several months in summer under the charge of dairymaids and young men. On these sæters are huts or chalets in which those tending the cattle live and make the cheese and butter. Norwegian farming generally is in a very backward condition, and the treatment of cattle pursued in the country is specially defective. From a mistaken notion that the number of their cattle is of more consequence than their quality, Norwegian farmers usually keep a larger stock than they can feed properly during the winter, and supplement their fodder (chiefly hay) with birch and alder leaves, bark of the mountain ash, reindeer-moss, and along the coast with fish refuse. The consequence is that, though an improvement is now taking place in this respect, Norwegian cattle still commonly leave the byres in spring in a very weakly condition. In their methods of making cheese and butter the Norwegians are also very far behind. Besides cattle the Norwegian farmer possesses horses, goats, sheep, and swine, and among the Laplanders in the northern provinces the reindeer is a domestic animal of great value.

The **forests** of Norway are roughly estimated to cover about one-fifth of the whole area, and form a very important branch of national wealth. Most farms have a more or less extensive stretch of wood attached to them, and where this is the case the peasant proprietor derives from this part of his property not the least important part of his income. Unfortunately the want of proper regulations has led to the wholesale felling of forests in some localities, to such an extent as even to cause a change for the worse in temperature and climate. A

large area of forest land belongs, however, to the state, and in these parts a less wasteful management prevails. Even the peasant proprietors have now become alive to the danger of denuding their country of trees, and young plantations may now be seen everywhere, trees being planted wherever they can find root. The principal forest tree is the pine, and next in importance are the oak, birch, elm, and beech.

ZOOLOGY.—Among the larger wild animals the wolf and bear abound in the forests both of Norway and Sweden, and often commit great ravages. The elk and deer are also found, but in more limited numbers. Of smaller animals the most destructive is the lemming, which at intervals of years descends in immense numbers into the low country and lays it waste. Among birds the most remarkable are eagles, capercailzies, and woodcocks.

FISHERIES.—The fisheries of Norway are of very great value, and mainly contribute to the support of the inhabitants along the sea-board, from the Naze to the entrance of the White Sea. The fisheries are divided into three chief divisions—Lofoden, Romsdal, and Finmark, and include the cod, herring, mackerel, salmon, shark, walrus, seal, and lobster fisheries, those of cod and herring being by far the most important. The rivers and lakes abound with salmon and salmon-trout, and make Norway one of the best angling countries in the world.

MANUFACTURES, COMMERCE, AND COMMUNICATIONS.—Norway has few manufactures of any consequence. The advantage afforded by the magnificent water-power of the country is counterbalanced by the disadvantage of a sparse population, who are in large part compelled by their comparative isolation to supply their first wants with their own hands. Still manufacturing industries have in recent years made some progress. Distilleries, brickworks, saw and flour mills are numerous; and there are also iron foundries, machine works, tobacco factories, lucifer-match factories, &c. The export trade is almost entirely confined to raw produce. The principal items are fish, smoked and dry; timber, whale and seal oil, metals, skins of wild animals, feathers, furs, &c. In recent times lucifer matches have been exported to a considerable extent. The chief imports are grain, colonial wares, wines and spirits, salt, woven fabrics, and other manufactured articles. This trade is chiefly concentrated in the towns of Bergen, Christiania, and Throndhjem, though Drammen, Stavanger, Christianssand, and Arendal likewise have a considerable share. Britain and Germany are the principal countries with which the trade is carried on, and Sweden, Denmark, and Russia come next. The shipping is chiefly in the hands of the Norwegians themselves, who possess a larger mercantile navy than any country in Europe except our own, and in proportion to population larger than any country in the world without exception. The length of the railways in the kingdom is equal to about one mile of railway for 180 square miles of surface. The number of letters delivered is equal to about six per head of the population, and the number of telegrams to about one for every three.

MONEY, WEIGHTS, AND MEASURES.—The monetary system both of Sweden and Norway is the same as that of Denmark. In both countries the

native system of weights and measures used in France has been introduced, and in Norway it is to be obligatory from July 1, 1882, in Sweden from January 1, 1889. Meantime the following units are also in use in the two countries:—

NORWAY,	Pund = 1·1 lb. avoir.	SWEDEN,	Skålpund = ·937 of a lb. avoir.
	Fod = 12·02 Eng. inch.		Fot = 11·7 Eng. inch.
	Kande = 3·3 imper. pint.		Kanna = 4·6 imperial pints.
	Miil = 7·01 Eng. miles.		Mil = 6·64 Eng. miles.

RELIGION AND EDUCATION.—The great body of the people are Protestants of the Lutheran Confession. Though no express law prohibited other religious bodies from meeting for public worship, the popular feeling was for long so decidedly opposed to it that a law, permitting them so to meet, and form regular congregations under their own pastors, was passed for the first time in 1845. The country is divided into six bishoprics (*stifts*), corresponding in name and extent with the administrative provinces; and into 902 parishes. With exception of the cathedral of Throndhjem, founded A.D. 1180 or 1183, and a few other churches which are stone edifices, the churches in Norway are generally built of wood. Many of them are very ancient structures, dating as far back as the eleventh and twelfth centuries.

Hitterdal Church, Christiania Stift.

Education is compulsory, and is conducted on a national system, according to which gratuitous instruction, of an elementary kind, is placed within the reach of all. In the country there are what are called *fast skoler*, or stationary schools, and others *omgangs skoler*, or ambulatory schools. The latter, as their name implies, shift about at certain periods of the year from place to place in the more thinly-peopled districts; and thus have the effect of bringing education to those who, but for this arrangement, would be doomed to live without it. Towns possess, in addition to these people's schools, what are called middle schools, middle and royal schools, burgher schools, Latin or learned schools, in all of which superior instruction is given; there are also four cathedral schools, one each in the towns of Christiania, Bergen, Throndhjem, and Christianssand. At the head of all the educational establishments is the University of Christiania.

PEOPLE, &c.—The population of Norway is almost entirely of Scandinavian

origin. A small number of Lapps and Kvæns dwell in the northern parts. The Norwegians proper are about the middle height, light-haired, and blue-eyed. They show a strong passion for a sea life, and make excellent sailors. The Lapps (improperly called in Norway Finns) dwell in Nordland, and more especially in Finmark, and bear little resemblance to the Norwegians proper. They are of low stature, but of great muscular power; they have a large head; long, dark, glossy hair; high cheek-bones; a large mouth; a scanty beard; and a skin of a dingy yellow hue, probably rendered darker than nature has made it from living in smoky cabins and neglecting habits of cleanliness. Those on the coast live by fishing; those belonging to the interior lead a nomadic life, pasturing herds of reindeer. The Kvæns (or Finns proper), though dwelling in the same localities with the Lapps, are very easily distinguished from them both by physical features and habits; being generally tall and well-proportioned, and remarkable for their cleanliness. A vice common to all these classes is an excessive fondness for ardent spirits. Houses in Norway are generally built of logs of wood, roughly squared and laid above each other, with a layer of moss between to keep the interstices tight. Though there are few or no mansions of great extent, they are all roomy and comfortable, and the Norwegians are said to be the most generally well-lodged people in Europe. The population of Norway is everywhere thin. In the most populous of the six stifts, that of Christiania, it is only about 48 to the square mile; in Tromsö it is little more than 4 to the square mile; the average over the whole kingdom is about 15 to the square mile. The language of the uneducated classes in Norway is radically identical with the Icelandic, which still bears much affinity with it. The language of the educated is Danish, but is distinguished from the Danish of Denmark by various peculiarities, chiefly of pronunciation. Both the Lapps and Kvæns speak dialects of their own not belonging to the Indo-European family.

Interior of Fisherman's Cottage, Lapland.

GOVERNMENT AND DEFENCE, &c.—According to the constitution settled in 1814, Norway is a limited hereditary monarchy, united with Sweden as a free,

independent, indivisible kingdom. The king makes all appointments, but with the exception of the governor-general is not allowed to nominate any but Norwegian subjects to offices in the kingdom. The ministry is composed of seven councillors, each at the head of a separate department, and of a president or minister of state. The last mentioned, together with two councillors, who are annually changed, resides with the king in Sweden; the remaining five, with the governor-general, reside in Norway. On a new succession the sovereign must be crowned King of Norway at Throndhjem. The members of the legislative assembly, or, as it is called, Storthing (from *stor*, great, and *thing*, court), are elected every three years by voters previously elected by the citizens possessing one or more of various qualifications. When assembled the Storthing divides itself into two chambers—one consisting of one-fourth of the members, and called the Lagthing; and the other of the remaining three-fourths, and called the Odelsthing. These chambers meet separately, and each nominates its own president and secretary. Every bill must originate in the Odelsthing, but may be proposed either by the members or by the government. When carried in that court it is sent to the Lagthing, and thence to the king, whose assent makes it a law. If the Lagthing disapproves of the bill it must return it, with the reasons of disapproval, to the Odelsthing. If carried there again, with or without modification, it comes as before to the Lagthing. If the Lagthing rejects the measure a second time the whole Storthing meets in one chamber, and the final adoption or rejection is determined by a majority of two-thirds. The veto of the king becomes ineffectual against any measure which has been adopted without modification by three successive Storthings or parliaments. The revenue is mainly derived from customs and excise duties. The debt charges make up more than one-seventh of the expenditure.

All young men past the age of twenty-one are liable to conscription for military service. The nominal term of service is ten years, seven of which are passed in the line, and the remainder in the Landværn or militia. The actual service is limited to 50 days' drill in the infantry, or 90 days' in any of the other arms, in the first year of service, after which the recruits are sent on furlough, subject to an obligation to meet for annual practice. The naval force is manned to a large extent by volunteers, but seafaring men and inhabitants of seaport towns are liable to conscription for naval service.

CHIEF TOWNS.—Christiania, the capital of Norway, picturesquely situated at the head of the fiord of the same name, was built in 1624 by Christian IV. near the site of the older town of Opslo or Oslo, which had been destroyed by a conflagration. Since the union of Norway with Sweden, it has increased so much in importance that its population has grown from about 10,000 at that date (1814) to 76,000, or, including suburbs, 95,000 in 1875. Besides being the seat of government it is an important commercial town, receiving at least a third of the whole imports of Norway, and it also possesses a university founded by voluntary subscriptions in 1811. South-west of Christiania, at the head of the Drammens Fjord, another branch of the Christiania Fjord, lies Drammen (19,000), the principal seat of the Norwegian trade in timber. On the coast nearly due

west of Drammen lies Stavanger (20,000), near the mouth of a wide fiord of the same name. It is the principal seat of the herring fisheries and the trade in herring, and possesses a cathedral dating from 1013. Farther north on the coast is Bergen (34,000), an old Hanseatic town, now the chief port in Norway and the second town in point of population. It owes its name (meaning 'Mountains') to the fact of its being surrounded by mountains 2000 feet high, and to this circumstance, together with its exposure to the moist south-west winds, is no doubt due that humidity which gives Bergen the reputation of being one of the rainiest spots in Europe. The streets in the interior of the town are steep and narrow, and the houses are all of timber except at the street corners. Still farther north lies Throndhjem (23,000), formerly Nidaros, situated on the south side of the fiord of the same name, mainly on a peninsula between it and the river Nid, and like Bergen built mainly of wood. It is an old town, said to have been founded by Olaf Tryggressön about the end of the tenth century, and here the old Norwegian kings were usually crowned. Its venerable cathedral was in great part destroyed by fire in 1530, but the vast and imposing choir still stands.

Bergen.

HISTORICAL SKETCH.—So far as is known to history Norway was first consolidated into a single kingdom by Harald Haarfager in 872. In the eleventh century the Norwegian kings ruled not only over Norway, but also over Iceland and the Faroe Islands, the Orkney and Shetland Islands, the Hebrides and the Isle of Man. Towards the close of the thirteenth century the last two were sold to the King of Scotland, and in 1380 the whole kingdom with its remaining dependencies was inherited by the King of Denmark. See under DENMARK.

SWEDEN.

Sweden (Swedish, *Sverige*) is a kingdom in the north of Europe, and forming with Norway, with which it is now united under one monarchy, the whole of the peninsula known in ancient times bv the name of Scandinavia. Its greatest

length is about 1000 miles; its greatest breadth on a parallel of latitude 193 miles. In addition to the mainland it has a great number of islands, the most of them of very small dimensions and lying close to the coast. The largest, and also the most distant, is Gotland, in the Baltic.

POLITICAL DIVISIONS.—Sweden consists of the three great divisions of Svealand or Sweden proper in the middle, Götaland or Gottland in the south, and Norrland in the north, the area and population of which are given in the following table:—

	Area in Eng. sq. miles.	Population, Dec. 31, 1878.	Population per sq. mile.
Götaland (with Lakes Wener and Wetter), ...	37,929	2,590,378	68
Svealand (with Lakes Mälar and Hjelmar), ...	32,848	1,335,798	41
Norrland, ...	100,053	605,687	6
Total,.....	170,830	4,531,863	27

The great divisions are subdivided into administrative districts called *läns*, and since, as in the case of France, there was an older subdivision into provinces, which are still frequently referred to by name, we here give a list of these old provinces, with the läns most nearly corresponding to them:—

Provinces.	Läns.
GÖTALAND:—	
Scania,.....	Malmöhus and Christianstad.
Halland, ...	Halmstad.
Blekinge,.....	Carlskrona.
Smaland,.....	Jönköping, Kronoberg (or Vexiö), and Calmar.
Isle of Gotland, ..	Visby.
Ostergötland,.....	Linköping.
Vestergötland, ...	Skaraborg (or Mariestad).
Bohus,.....	Göteborg and Bohus.
Dalaland,.....	Elfsborg (or Venersborg).
SWEDEN PROPER:—	
Stockholm, ...	Stockholm, town and country.
Södermanland, ...	Nyköping.
Upland,.....	Upsala.
Vestmanland.....	Vesterås.
Nericia,.....	Orebro.
Vermland, ...	Carlstad.
Dalarne (or Dalecarlia), ...	Copparberg (or Falun).
NORRLAND:—	
Gestrikland and Helsingland,.....	Gefleborg.
Herjedalen and Jamtland, ...	Ostersund.
Medelpad and Angermanland, ...	Vesternorrland (or Hernösand).
Bothnia & Lappmarken,.....	Vesterbotten and Norrbotten.

PHYSICAL FEATURES.—The coast-line, above 1400 miles in length, is serrated rather than deeply indented; its bays and creeks, though very numerous, having neither the width nor tortuous lengths by which the fiords of Norway are characterized. The west coast is very rocky, but seldom rises so high as 30 feet. Along the south and south-east coast low shores alternate with precipitous cliffs, which, however, are of no great elevation. A great number of islets or scars are scattered near the shores, and where they form the archipelago of Stockholm are especially numerous. The whole of the upper part of the shore of the Gulf of Bothnia consists of sandy alluvial deposits, which are brought

down by the rivers in such quantities that they seem destined at no distant period to convert a large portion of the gulf into dry land. It would appear, however, that alluvium is not the only agent employed in carrying on this process of shallowing, since it has been proved that the whole coast of Sweden is continually rising, the rise being greatest in the north.

The interior of Sweden is by no means generally mountainous, and its surface has far less of a highland than of a lowland character. The most elevated portion of it commences in the west near the parallel of 62°, and is continued north along the frontiers of Norway, not so much in a continuous chain as in

The Skurusund near Stockholm.

isolated mountain-masses rising from an elevated table-land, which, where loftiest, is at least 4000 feet, and forms the base of several summits which rise more than 6000 feet above sea-level, and owing to their high latitude are covered with perpetual snow. The loftiest mountain is Sulitjelma, in lat. 67°, 6485 feet, and is partly within the Norwegian frontier. The highest mountain entirely within the boundaries of Sweden is Areskutan, in lat. 63° (4810 feet). The whole of the northern part of the country slopes down towards the Gulf of Bothnia, sending down numerous torrents, which in their course often expand and form chains of lakes and dreary swamps. The same slope is continued south of 62° N., but besides it there is a south slope which attains its lowest level near lat. 59° N., on the shores of the magnificent lakes which there stretch almost continuously across the country east to west. To the south of 59° N. the country is generally flat, though in many parts finely diversified.

RIVERS AND LAKES.—These are very numerous, and some of the latter are on a gigantic scale, giving to the scenery of the country several of its grandest features. The rivers all belong to the basins of the Baltic Sea and the German Ocean. The former receives the far larger share. To it belong the Tornea, which, rising in the Norwegian mountains, pursues its course south-south-east for nearly 290 miles, augmented by numerous large affluents, and falls into the northern extremity of the Gulf of Bothnia; the Lulea, Pitea, Skelleftea, and united Windel and Umea, which flow precipitously south-east into the same gulf; the Angermann, which has a length of 230 miles, and in the lower part of its course becomes so wide and deep that vessels of 600 tons can ascend nearly 70 miles from the sea; and the eastern and western Dal, which, uniting their streams, receive the discharge of numerous lakes, and pursue a more circuitous course than usual in Swedish rivers. The principal rivers belonging to the basin of the German Ocean are the Klar and the Göta, the former of which, issuing from Lake Fämund on the edge of the Dovrefjeld Mountains, furnishes Lake Wener with its chief supply of water; while the latter, which may be considered only as its continuation, discharges it into the ocean.

The lakes not only add to the beauty of the scenery, but, both by their natural depth and the canals which have been cut to connect them, are of vast navigable importance, and furnish a long line of internal communication. In this way a direct channel has been opened from Gothenburg on the west to Söderköping on the east coast, and communicating with the important towns of Venersborg, Carlstad, Mariestad, Jönköping, and Linköping. In the same manner the capital has been enabled to extend its connections with the interior. In general, however, the rivers are too rocky for navigation. The largest lake is Lake Wener, in Swedish, *Venern* (area 2014 square miles); the next in size, Lake Wetter, in Swedish, *Vettern* (715 square miles). The banks of the latter are more picturesque than those of the former, and its water is exquisitely clear. Lake Mälar (468 square miles), better known than the other large lakes, from having the capital on its shores, is also remarkable for the number of islands which so crowd its surface that it is scarcely possible to find a square mile of open water. Hjelmar, which has both a natural and an artificial communication with Lake Mälar, has an area of 188 square miles. The rivers and lakes are well stocked with salmon and trout.

GEOLOGY AND MINERALS.—Almost the whole of the country is composed of primary rocks, principally gneiss, crystalline limestone, and granite. Patches of porphyry are found here and there, especially in the north of Sweden proper. Silurian rocks are also found in various localities, as near Lake Storsjön in Norrland, near Lake Siljan in Sweden proper, and in the western part of Götaland. In the south of Götaland occur triassic and Jurassic formations, in which the only coal-fields of Sweden are found. The isle of Gotland is mainly a plateau of limestone of the Silurian formation, over which are plentifully scattered boulders of granite and porphyry deposited by ice. The minerals include silver, found in limited quantities in several places, particularly Sala, about 25 miles north of Lake Mälar; zinc, found in considerable quantity in the läns of Orebro and

Norrköping; copper, found chiefly near Falun; and inexhaustible supplies of iron. The last, indeed, not only occurs in beds of immense thickness, inclosed in strata of gneiss, but forms the principal mass of whole mountains. The most celebrated iron-mines are those of Dannemora in län Upsala, where the iron worked is perhaps the best in the world, and is admirably adapted for steel. The quantity produced, however, is much smaller than in some other districts (Carlstad, Orebro, Gefle, Falun, Vesteraas), where the quality is also excellent. The mountains of iron above referred to are principally in Lapland, where unfortunately the scantiness of the population and the dearth of fuel make this mineral wealth almost useless. The most celebrated of these iron mountains is Gellivara, 1750 feet high, said to consist entirely of magnetic iron ore containing from 60 to 80 per cent of pure metal, and to be able to supply all the blast furnaces of the world with raw material for thousands of years. The production of the coal-fields of Sweden has considerably increased since the opening of a railway through them, from Helsingborg to Hessleholm, in 1875. Among the minerals of less importance are cobalt, sulphur, alum, red ochre, and lead.

CLIMATE.—The climate of Sweden varies considerably with the latitude and elevation. Speaking generally, the climate of Sweden, though modified by the proximity of the sea, so as to be milder in all respects than the interior of the northern parts of the Russian and Asiatic continents, is much more extreme than that of our own island, even where the two countries are in the same latitude, and experiences greater degrees both of cold and heat. Hence at Stockholm, which is in the latitude of the Orkneys, the thermometer has been known to descend 26° below zero in January, and to rise in July to the almost tropical heat of 96°·8. The most disagreeable season in Sweden is not winter, but the long and gloomy autumn, and the inconstant spring with its extraordinarily variable temperature. The mildest climate is that of the isle of Gotland.

AGRICULTURE, &c.—About seven-ninths of the entire population of Sweden are dependent on agriculture. The landed properties are for the most part small, seldom much above 60 acres, while the average size is about 30 acres. In the northern part of Sweden proper (the former province of Dalecarlia or Dalarne), the subdivision of the land has been carried to the greatest extreme. Some estates are subject to much heavier imposts than others, the least heavily burdened being those which formerly belonged to the nobility, and which, though the least numerous, are the largest in size. In general agriculture is in a very flourishing condition, especially in the south, where there are several districts that can vie with the best cultivated parts of England. This agricultural prosperity dates only from about 1819, since which time a large outlay has been made for the improvement of the soil, and much has been done otherwise to improve the methods of cultivation. Down to that date Sweden was a grain-importing country, but since 1853 the country has grown a surplus of grain for export. The principal grains are oats, rye, and barley. Wheat is grown to a much smaller extent. Potatoes are grown in almost all parts of the country, and form one of the main articles of food among the lower classes. The most important auxiliary crops are hemp and flax, particularly the latter, which

is of excellent quality; on a few favoured spots tobacco, hops, and madder are grown. Cherries, apples, and pears are tolerably abundant in the southern districts. The principal domestic animals are cattle, sheep, and in the north, as in Norway, reindeer. In cattle-rearing the people of Sweden are behind-hand. The races of cattle are generally inferior, and the attention paid to the animals is deficient. The wild animals are the same as those of Norway.

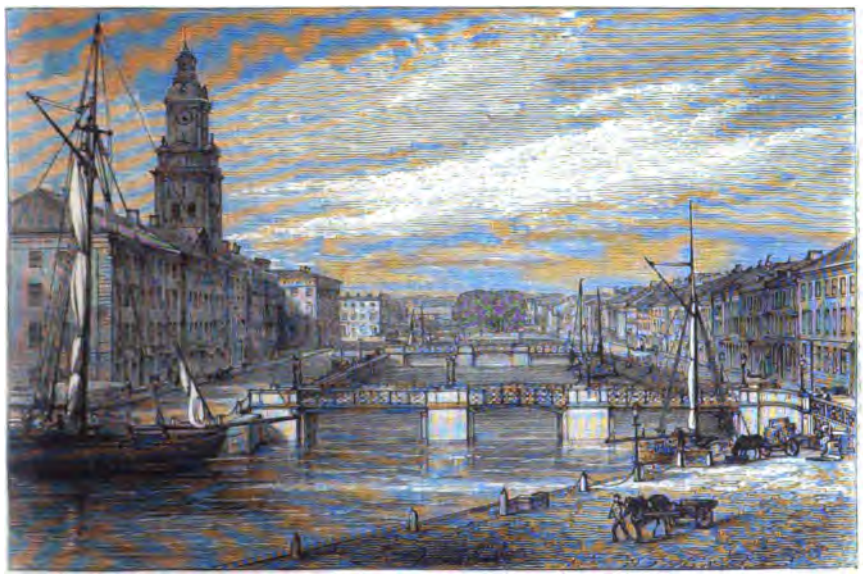
The **forests** of Sweden are estimated to cover upwards of 40 per cent of the whole surface. In the very northern extremity of Sweden, at least in those parts where the surface is not very elevated, fine specimens of pine, fir, and birch are found. These, however, occupy only occasional patches, and the true forest-land must be considered as having its limit near 64°. Below this latitude, and chiefly in the central and southern parts of the kingdom, the forests sometimes stretch continuously for 80 miles in length by 20 miles in breadth. The prevailing trees are pines, firs, beeches, alders, and ashes. Forests in which oak and beech are the prevailing trees occur only in the south. Till recently the management of the forests was very wasteful, but an improvement is now going on in this respect. Upwards of 13,000 square miles of forest-land belong to the state, and in these tracts an example of better management is set.

FISHERIES.—The fisheries of Sweden are not nearly so important as those of Norway, but form nevertheless a lucrative branch of industry on the west coast, where cod, mackerel, and herring, as well as lobsters, crabs, and oysters, are caught. About the beginning of the present century the herring suddenly disappeared from this quarter, thereby plunging the fishing population of the coast into the deepest poverty; but within the last decade or two it has returned, and the herring fishery is once more pursued there with great activity. Some of the Swedish fishermen fit out boats for fishing in Norwegian waters.

MANUFACTURES.—Manufacturing industry has advanced very rapidly in Sweden in recent years. It is chiefly centred in the capital, Gothenburg, and Norrköping. The chief branches of manufacture, besides metallurgy, are the construction of machines (especially at Motala), the spinning and weaving of cotton, the manufacture of woollen cloth, paper, lucifer matches, leather, glass, and porcelain. There are also several tobacco manufactories and sugar refineries, and in the south there are some manufactories of beetroot sugar. Domestic weaving is carried on to a considerable extent, especially that of woollens and cottons in Gefleborg, and that of fine linens in Westnorrland. In the north of Sweden proper many of the peasantry find subsidiary employment for themselves in clockmaking.

COMMERCE AND COMMUNICATIONS.—The chief seats of the external commerce of Sweden are Stockholm and Gothenburg. The countries with which that commerce is principally carried on are Great Britain, Germany, and Denmark, the first mentioned country receiving about half of the exports and furnishing about a third of the imports. The principal articles of export are wood, iron and other metals, and oats; the principal imports manufactured articles, coal, colonial wares, tobacco and salt. In the internal trade of the country as well as the trade with Norway the canals afford the principal means of transport. The

use that has been made of the great lakes in constructing this system of inland navigation has already been referred to. Since 1856 a considerable network of railways, about a third of which belong to the state, has been laid in the south of Sweden. When compared with the whole area of the country the total length of this railway system is equal to about one mile for every 50 square miles of surface; but when compared with the area of the land surface of Götaland and Sweden proper, to which the system is nearly confined, the proportion is about one mile for every 20 square miles of surface. The number of letters



View in Gothenburg.

conveyed by the post-office is equal to about six per head of the population, and the number of telegraphic messages to about one for every five of the population.

MONEY, WEIGHTS, AND MEASURES.—See under NORWAY.

RELIGION AND EDUCATION.—The Lutheran Church is the religion of the state, and to it the great mass of the people adhere. The form of government is episcopal. The head of the church is the Archbishop of Upsala, under whom there are eleven bishops. A general assembly of the clergy is held every five years, and without the consent of this body no change can be made in ecclesiastical law. Education is widely diffused, primary education being gratuitous and compulsory. In 1877, 98 per cent of the children between eight and fifteen were attending the public schools. For the higher education there are two universities, those of Upsala (founded in 1477) and Lund (founded in 1668), attended by about 2000 students. Women are admitted to university degrees, and almost all careers are legally open to them.

PEOPLE, &c.—The people of Sweden are of the same origin as those of

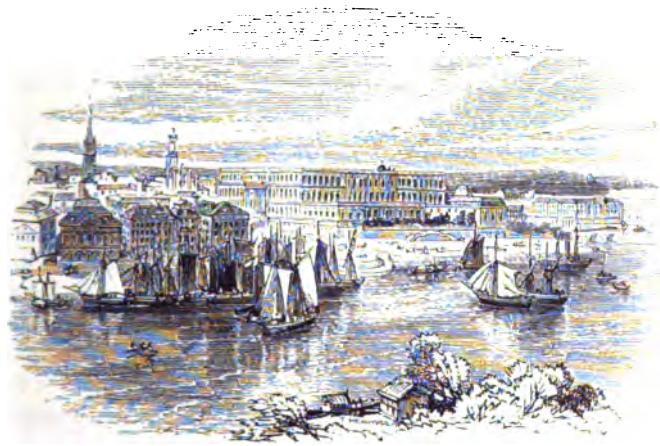
Norway, and as in the latter country the northern parts of Sweden are inhabited by Lapps and Finns. (See under NORWAY.) They are active and enterprising, and manifest a marked predilection for scientific pursuits. The state of morality is on the whole favourable. Heinous crimes are few, but a great number of minor delinquencies figure in the calendar, and are evidently accounted for by the far too prevalent use of ardent spirits. Except in the towns, and even in many of them, the houses are mostly of wood. In recent years the people of Sweden have been emigrating in large numbers to America. The Swedish language is closely akin to that of Denmark and Norway, but is much more interesting to philologists, as being more directly derived from the common Gothic original.

Swedish Home.

GOVERNMENT AND DEFENCE.—Like Norway, Sweden is a limited hereditary monarchy. The legislative power is vested in a diet consisting of two chambers both elective. The first chamber consists of one member for every 30,000 of the population, and its members are elected by twenty-five provincial landstings, and the corporations of Stockholm, Gothenburg, Norrköping, and Malmö. They are elected for nine years, and serve gratuitously. The second chamber also represents both a rural and an urban population, the former having one representative for every district containing less than 40,000 inhabitants, and two for every district with a population above that number, and the latter one representative for every 10,000 of the population. The electoral privilege is limited to natives of Sweden, aged twenty-one, possessing real property to the taxed value of a sum equal to about £56, or farming for a period of five years landed property of the value of about £333, or paying income-tax on an annual value of about £45; and all persons of twenty-five years of age, having the same qualifications, are eligible as members. Members are elected for three years, and are paid about £67 per session for four months, in addition to travelling expenses. The election is by ballot. About a third of the revenue is derived from national property, including railways; the remainder from customs, excise, and other indirect taxes. Part of the expenditure—civil, military, and ecclesiastical—is defrayed from crown lands, and does not appear

in the public accounts. Sinking funds are provided for the payment of the debt, the charges on account of which absorb less than one-seventh of the total revenue. The army consists of enlisted troops, a militia maintained by land-owners and crown domains, and conscription troops, drawn by annual levy from the male population between twenty and twenty-five years of age. There are also volunteers, first organized in 1861 by the spontaneous desire of the population, and there is a separate militia for the island of Gotland.

CHIEF TOWNS.—In respect of its situation Stockholm, the capital of Sweden, is one of the most striking towns in Europe. Standing on both sides of the channel by which the waters of Lake Mälar mingle with those of the Baltic, and occupying also a number of intervening flat or rocky islets, in some of its quarters modern with spacious and regular streets, in others old with narrow crooked streets and lofty houses, in others again semi-rustic, while its immediate surroundings are composed of naked plateaux alternating with primeval forests of oak and pine, with here and there patches of pasture and cultivated land, and all the slopes studded with castles and country seats, it presents a general aspect rivalling for grandeur and variety that of Lisbon or Constantinople. The houses in the town are of stone or brick covered with stucco, the roofs in many cases having a covering of copper; in the suburbs they are very often of wood. Though an ancient town Stockholm was not a place of any importance till the middle of the thirteenth century, when it was fortified by Jarl Birger (who is often called the founder of it), and it was not definitively recognized as the capital of the kingdom till the accession of the house of Vasa early in the sixteenth century. Its population, estimated in 1878 at about 170,000, has much more than doubled within the last fifty years. Upsala (14,000), about 40 miles north of Stockholm, was the former capital of Sweden, but is still more celebrated on account of its university, in which Linnæus was a professor. In connection with the university there are an excellent chemical laboratory, a botanic garden, and a valuable library, among the treasures of which are the manuscript Edda of Snorre Sturleson, and the famous *Codex Argenteus*, the most perfect of the two copies of the Gothic Bible of Ulfilas. Norrköping (27,000), about 85 miles south-



Stockholm, the Royal Palace.

west of Stockholm, at the head of the Gulf of Bræviken and the mouth of the Motala, is, next after the capital, the most flourishing of the manufacturing towns of the kingdom, the principal manufacture being woollen cloth. It is only partly built of stone, but has fine broad streets and large open spaces. On the opposite side of the country the most important towns are Gothenburg and Malmö. Gothenburg, or more properly Göteborg (74,000), is the second town in the kingdom in point of population, and the principal port, being admirably situated for the trade with Western Europe. It forms a semicircle on the left bank of the southern branch of the delta of the Göta-elf, and is surrounded by rocky heights. The houses are entirely of stone. The present town dates from 1618, when it was built by Gustavus Adolphus on the site of a previous town burned by the Danes. Malmö (36,000), the third largest town in the kingdom and one of the most ancient, stands on the Sound nearly opposite Copenhagen, from which it is about 12 miles distant. It is a busy port, connected by lines of steam packets with Copenhagen, Gothenburg, Lübeck, Stralsund, and Stockholm. The most important town on the south coast is Carlskrona (18,000), the principal naval station of Sweden, founded in 1680 by Charles XI. The docks of the place, cut out of the granite which forms the coast at this part, are regarded as a masterpiece of engineering. Visby, on the west coast of the isle of Gotland, is, with its thirty towers and belfries, the most curious specimen of a town of the middle ages to be seen in Scandinavia; and though now a place of only about 6000 inhabitants, was from the eleventh to the thirteenth century one of the most important commercial entrepots in the Baltic. A famous code of maritime law took its name from this town, where it was compiled and promulgated.

HISTORICAL SKETCH.—The origin of the Kingdom of Sweden can hardly be referred to an earlier date than the end of the tenth century, and it was only at a comparatively recent period that it acquired its presents limits. In early times it embraced only Sweden proper and the territory on the east lying north and south of that region, the remainder belonging to Norway and Denmark. The first extension of its territory was made not within its present limits, but in Finland, where conquests and settlements were made by it in the latter part of the twelfth century and were increased about the middle of the thirteenth. From 1319 to 1363 Sweden owed allegiance to the same king as Norway, and in 1397 it was included in the Union of Calmar, by which the three Scandinavian kingdoms, Denmark, Norway, and Sweden, were united under one ruler. So far as Sweden was concerned this union came to an end about the middle of the next century, when that country elected a king of its own, but the union was renewed at intervals down to the accession of the house of Vasa in the person of Gustavus Vasa in 1523. Western Norrland and the Isle of Gotland were acquired from the King of Denmark and Norway in 1645, and in the peace of Röskilde, in 1658, Sweden obtained from Denmark southern and western Götaland, by which its dominions in the Scandinavian peninsula were extended to the boundaries that are still maintained. But in addition to this territory the dominions of Sweden then included a large extent of territory elsewhere. In modern Russia Sweden still held a large part of Finland, and early in the seven-

teenth century she acquired the remainder of that dominion and also the strip of land to the east and south of the Gulf of Finland (Ingermanland and Esthonia), and in 1660 she received from Poland Livonia. In Germany the peace of Westphalia (1648) concluding the Thirty Years' War, in which Sweden played an important part, gave her part of Pomerania with the islands of Rügen, Usedom, and Wollin, the principalities of Bremen and Verden, and the town of Wismar in Mecklenburg. Most of these possessions were lost early in the eighteenth century. In 1719 Bremen and Verden had to be given up to Hanover; in 1720 part of Pomerania was ceded to Prussia, and in 1721 Russia acquired from Sweden all her dominions in that country except the greater part of Finland. Another part of this last territory was acquired by Russia twenty years later, and the remainder in 1809. Finally the treaty of Vienna in 1814 handed over to Denmark the remainder of Swedish Pomerania (the part between Mecklenburg, the Peene, and the Baltic with the island of Rügen), which was soon after purchased by Prussia.

GERMAN EMPIRE.

Germany (German, *Deutschland;* French, *Allemagne*) is the name given to all that part of Central Europe in which the mass of the people are German in race and language, but in its usual application is confined to the aggregate of states constituting the German Empire. Taken in this sense the greatest length of Germany on a parallel of latitude (about 53° 40′ N.) is about 630 miles; greatest breadth on a meridian of longitude (about 9° 40′ E.) about 520 miles.

POLITICAL DIVISIONS.—In the table on next page the second column of figures shows roughly the proportion of the area of the different states to that of Great Britain (B), in round numbers 90,000 square miles, or Anglesey (A), 300 square miles, and the last the ratio of increase of population between 1875 and 1880.

PHYSICAL FEATURES.—As each state is described under its own name, the description here is confined to leading features which belong to Germany as a whole. These are greatly diversified, and present such an irregular succession of mountains and valleys, table-land and plains, as makes it extremely difficult to arrange them for the purpose of a distinct general description. The whole country may, however, be considered as consisting of a mountain region in the south, which forms the southern limit of a great northern plain. This mountain region does not in average height exceed 5000 feet, and is extremely complicated, consisting of a great number of separate ranges, which ramify in all directions, and become so interlaced with each other that the limits assigned to them are in many instances arbitrary. The only range which has any title to be considered as a common centre is the Fichtelgebirge between Bavaria and the Saxon principalities, continued east by the Erzgebirge and the Riesengebirge, south-east by the Böhmerwald, west by the Thüringerwald, Rhöngebirge, and Spessart, and carried to its northern limit in the Harz. The western boundary of this region

is formed chiefly by the Schwarzwald and Odenwald, in Baden and Hesse. The plain in the north, part of the great plain of Europe, traversed by all the great rivers of Germany except the Danube, extends without interruption to the German Ocean and the Baltic, and flattens down so much when it approaches them as in many places to require artificial protection from their waves. Its length west to east may be about 600 miles, and its average breadth 200 miles. To all appearance it was at one time covered by the sea. Alluvial deposits of great depth are spread over almost every part of its surface, generally with so large a proportion of sand as to make it for the most part naturally unfertile; and erratic blocks (boulders deposited by ice in a former sea) are found scattered over this plain, in western Germany to the latitude of Paderborn, in central Germany to that of Brunswick, and in eastern Germany to that of Dresden.

CLIMATE, VEGETATION, AND ZOOLOGY.—Though Germany extends over $8\frac{1}{2}°$ of latitude, its mean annual temperature is remarkably uniform. This uniformity is evidently owing mainly to the different elevations of the surface, the low plains of the north having a higher, while the hills and plateaux of the south have a lower temperature than their latitudes might seem to indicate.

	Area in sq. miles.	Proportionate Area.	Population on 1st Dec. 1880.	Pop. in 1880 per sq. m.	Increase per sq. m.
KINGDOMS.					
1. Prussia	134,178	$1\frac{1}{2}$ B.	27,251,067	203	11
2. Saxony	5,789	$\frac{1}{15}$ B.	2,970,220	513	36
3. Bavaria	29,292	$\frac{1}{3}$ B.	5,271,516	179	8
4. Würtemberg	7,531	$\frac{1}{17}$ B.	1,970,132	262	12
IMPERIAL TERRITORY.					
5. Alsace-Lorraine	5,602	$\frac{1}{15}$ B.	1,571,971	280	7
GRAND-DUCHIES.					
6. Baden	5,824	$\frac{1}{15}$ B.	1,570,189	270	11
7. Hesse	2,965	$\frac{1}{30}$ B.	936,944	315	17
8. Mecklenburg-Schwerin ...	5,136	$\frac{1}{15}$ B.	576,827	112	4
9. Mecklenburg-Strelitz ...	1,131	$3\frac{3}{4}$ A.	100,269	88	4
10. Oldenburg	2,470	$8\frac{1}{4}$ A.	337,454	136	7
11. Saxe-Weimar	1,387	$4\frac{3}{5}$ A.	309,503	223	12
DUCHIES.					
12. Brunswick	1,425	$4\frac{3}{4}$ A.	349,429	245	15
13. Saxe-Meiningen	953	$3\frac{1}{6}$ A.	207,147	217	13
14. Saxe-Coburg and Gotha ...	760	$2\frac{1}{2}$ A.	194,479	256	16
15. Saxe-Altenburg	510	$1\frac{3}{4}$ A.	155,062	304	18
16. Anhalt	906	3 A.	232,747	257	22
PRINCIPALITIES.					
17. Waldeck	433	$1\frac{2}{5}$ A.	56,548	130	4
18. Lippe	459	$1\frac{1}{2}$ A.	120,216	262	17
19. Schaumburg-Lippe ...	171	$\frac{3}{4}$ A.	35,332	206	13
20. Schwarzburg-Rudolstadt ...	364	$1\frac{1}{4}$ A.	80,149	220	9
21. Schwarzburg-Sondershausen	333	1 A.	71,083	213	10
22. Reuss (elder line)	123	$\frac{1}{2}$ A.	50,782	413	26
23. Reuss (younger line) ...	321	1 A.	101,261	315	28
					Per cent.
FREE TOWNS.					
24. Bremen	98	$\frac{1}{3}$ A.	156,229	—	10
25. Hamburg	158	$\frac{1}{2}$ A.	454,041	—	17
26. Lübeck	109	$\frac{1}{3}$ A.	63,571	—	12
					Per sq. m.
	208,428	$2\frac{1}{3}$ B.	45,194,172	217	12

The climate, however, is more continental than insular, and hence the range of the thermometer is very considerable; and delicate plants, which grow vigorously and receive their full supply of heat in summer, often perish by the keen frosts of winter. The mildest climate is enjoyed by the valleys of the Rhine and the Main, where both the almond and the chestnut are matured. **Agricultural products** are numerous. The cultivation of the vine diminishes in importance from south-west to north-east. It is greatest in Alsace-Lorraine, next greatest in Baden, the Palatinate, and Hesse, less important in Würtemberg, still less in the Prussian provinces of the Rhine and Hesse-Nassau and north-western Bavaria, still less in the Kingdom of Saxony, and least of all, where it is carried on to any extent, in the Thuringian States, the Prussian provinces of Saxony, Brandenburg, Posen, and Silesia, and in southern and eastern Bavaria. Except in the loftier mountain districts, where the surface is fit only for pasture (and often where even that fails richer treasures are found beneath it), the growth of all the ordinary cereals is universal, and in some parts to such an extent as to leave a large surplus for export. Potatoes, hemp, and flax also form most important crops, and in many parts sugar-beet (chiefly in Alsace-Lorraine and Prussian Saxony), tobacco (chiefly in Alsace-Lorraine, the Palatinate, and Baden), and hops are cultivated on an extensive scale. The **forests** are of great extent, particularly in the mountain districts. They abound in all the finest trees of the temperate zone, and furnish timber which cannot be surpassed. The central plateau is more sparingly wooded, but the east part of the north plain has extensive tracts of oaks and beeches along the shores of the Baltic, and of pine, with a considerable intermixture of birch, in the interior.

The following table shows in percentages the manner in which the land is occupied in the leading states of the German Empire:—

States.	Arable and Garden Land.	Meadows and Pastures.	Woods.	Total Productive Surface.	Waste.
Prussia,	50·1	18·3	23·1	91·5	8·5
Bavaria,	42·2	19·8	32·0	94·0	6·0
Saxony,	52·4	13·0	30·5	95·9	4·1
Würtemberg,	47·6	17·0	30·6	95·2	4·8
Baden,	38·0	17·5	35·3	90·8	9·2
Alsace-Lorraine,	49·2	13·0	31·0	93·2	6·8
Hesse,	49·8	13·0	32·7	95·5	4·5
Thuringian States,	52·7	10·3	30·5	93·5	6·5
Mecklenburg,	53·5	15·0	13·3	81·8	18·2
Others,	43·2	15·3	19·7	78·2	21·8
All Germany,	48·6	17·7	25·3	91·6	8·4

Among domestic **animals**, the horned cattle of the districts along the North Sea and the Baltic, as well as those of north-western Bavaria, the sheep of Saxony and Silesia, and the swine of Westphalia have long been famous. The horse, the noblest of all, appears to be in many parts neglected; yet Schleswig-Holstein, East Prussia, Mecklenburg, Oldenburg, and other parts of Germany not only rear a sufficient supply for home requirements, but also furnish cavalry horses to the armies of France and Italy, and even export considerable numbers of carriage and riding horses. Game is very abundant, and among other wild

animals wolves, badgers, wild cats, wild boars, martens, and polecats infest the forests, especially in the south-west. Great efforts are being made by the government to extirpate the most dangerous of these. Fish are very numerous, both in the rivers and lakes, but do not include many of the finer varieties.

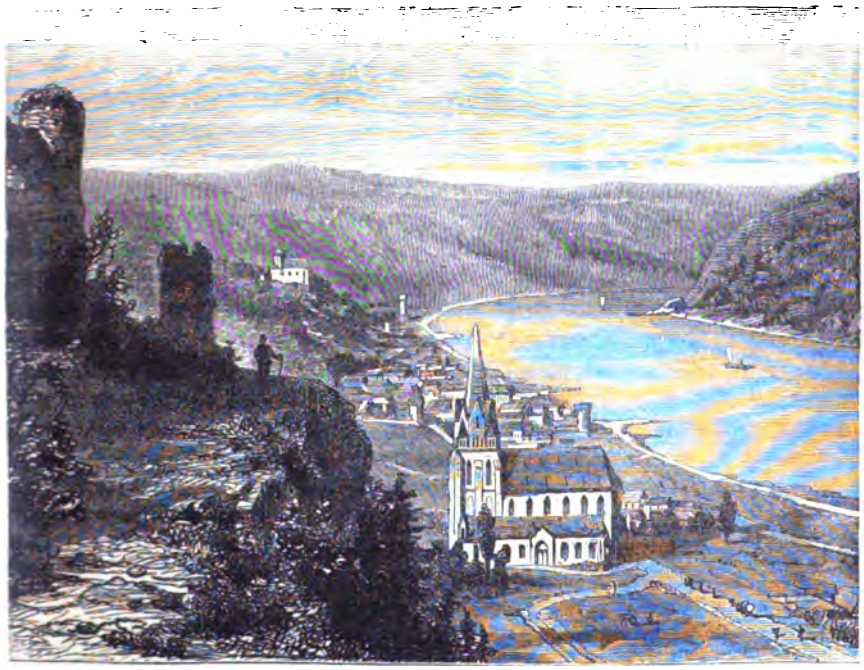
MINERALS.—Germany possesses numerous and varied mineral riches, the most important of which are common coal and brown coal, iron, zinc, lead, and salt. The production of coal and iron is about a third of that of the United Kingdom, that of lignite (about eleven million tons a year) is more than a fourth of its own production of coal. In respect of its mineral wealth the Prussian monarchy especially takes a prominent place among the states of Europe, and in the production of zinc surpasses all other countries in the world. After Prussia the Kingdom of Saxony is the most important mining country in Germany.

MANUFACTURES.—The long European peace greatly favoured the manufactures of Germany, as well as of other countries. Linens are made in every part of Germany, but more especially in Westphalia, Silesia, Bohemia, and Saxony; woollens in the Prussian provinces of the Rhine, Saxony, Brandenburg, and Silesia, in the Kingdom of Saxony and Alsace; the cotton manufacture constitutes the chief manufacturing industry in Alsace-Lorraine, the Kingdoms of Saxony and Würtemberg, and the Grand-duchy of Baden, and in Bavaria, Prussia, and other parts of Germany it occupies a high though not the highest place; the silk manufacture flourishes in the Rhine provinces and in Baden; iron manufactures are carried on in most of the states of the German Empire, but principally in Prussia, Alsace-Lorraine, Bavaria, and Saxony; steel is largely manufactured in the Rhine provinces, and in quality is little inferior to that prepared in England. The manufactures of beet-root sugar, of leather, of metals, porcelain, musical instruments, clocks, wooden wares, including toys, &c., are likewise important; and breweries and distilleries are to be met with everywhere.

MEANS OF COMMUNICATION.—Germany is provided by nature with an admirable system of water-ways in her great navigable rivers, the most important of which are the Danube, Rhine, Weser, Elbe, Oder, Vistula, and Memel, all of which have in addition important navigable affluents. Of the canals of Germany by far the most important is the Ludwigs-kanal in Bavaria, which connects the navigation of the Rhine basin with that of the Danube, and thus brings the German Ocean and the Black Sea into direct communication by water. The railway system has made considerable progress in Germany, forming, especially in Saxony and the states and provinces of the Rhine basin, a close net-work. The total length of railways in operation in Germany on the first of April, 1880, was equal to about 1 mile for every 10 square miles of surface: the total length in the Kingdom of Saxony was then equal to about 1 mile for every 4½ square miles of surface. About half the mileage of German railways belongs to the several states, and about one-eighth more, though the property of private companies, is under state management. All the railways of Germany, Austria, the Netherlands, Luxemburg, Russian Poland, and Roumania, and some of those of Belgium, belong to the union of German railways which was founded on the 10th of November 1846, and which has its seat at Berlin. The number

of letters despatched by the post-office of Germany is equal to about seventeen per head of the population, and the number of telegraphic messages to about one for every three persons.

COMMERCE AND SHIPPING.—The most of the states and communities which make up the German Empire have formed themselves into a commercial and customs union called the *Zollverein*, the object of which is to bring about a uniform system of commerce and a uniform tariff on imports and exports throughout all the territory embraced by the union. This territory is



The Rhine at Oberwesel, between Bingen and Coblenz.

not exactly identical with the territory of the German Empire, but excludes some districts belonging to the empire and includes some districts not belonging to the empire. The districts excluded are those belonging to the free towns Bremen and Hamburg (except a small portion belonging to the latter), also Altona, Geestemünde, Bremerhaven, Brake, and some communes of the Grand-duchy of Baden adjoining the canton of Schaffhausen. Those included, although not belonging to the empire, are the Grand-duchy of Luxemburg, and the commune of Jungholz, in the south of Kempten, belonging to Austria. The total area of the territory of the Zollverein is 209,283 square miles, and the population in 1875, 42,338,148. The whole management of the affairs of the Zollverein now belongs to the empire, which has the right not only of fixing the export and import duties for all the members of the union, but also of imposing

a tax on all the salt, tobacco, and beet-root sugar produced in the different states belonging to it, and on spirits and malt in all states except Bavaria, Würtemberg, and Baden. Alsace-Lorraine also has the malt taxation in its own hands. All the proceeds of the customs duties and the above-mentioned excise duties flow into the imperial treasury. According to the constitution of the empire all articles, the trade in which is free in one of the states belonging to the union, may be imported into any other state belonging to the union without being subjected to any duty unless a corresponding tax be put upon similar native products in the state into which it is imported. Articles of food and drink, and raw materials (fibres for spinning, wood, hides and leather, &c.), form nearly two-thirds of the imports, and manufactured articles (woven fabrics, metals and articles in metal, articles in leather, &c.) constitute more than one-third of the exports, while articles of food and drink (cereals, fermented liquors, animals and animal products, &c.) make up another third. The only members of the German Empire having a sea-board are Prussia, Mecklenburg, and Oldenburg, besides the free-towns. Reckoned by tonnage more than half the shipping of the empire enters and clears at Prussian ports, and nearly one third enters and clears at the single port of Hamburg.

MONEY, WEIGHTS, AND MEASURES.—Uniformity now prevails under all these heads throughout Germany. By the law of December 4, 1871, a uniform gold standard was introduced for the monetary system of the whole German Empire. The denominational unit is the *mark*, nearly equal to 1s. of our money, and is divided into a hundred *pfennige*. Twenty-mark and ten-mark gold pieces are coined, nearly equal to our sovereign and half-sovereign respectively, the exact relation being £1 = 20·429 marks. In all payments which may still be legally made in money of other denominations, the ten-mark piece is reckoned equal to $3\frac{1}{3}$ *thaler;* 5 *gulden*, 50 *kreuzers;* 8 *marks*, $5\frac{1}{3}$ *schillings* of Lübeck and Hamburg; and $6\frac{2}{3}$ *reichsthaler* of Bremen. The same law ordered the adoption of the mark as the general unit of the German coinage, commencing from the 1st of January, 1875. Since the 1st of January 1872, the French metrical system of weights and measures has been in force throughout the German Empire. (See FRANCE.) A measure equal to half a litre is called a *schoppen*, and one equal to fifty litres a *scheffel*. Half a kilogramme is one *pfund;* fifty kilogrammes, or 100 pfund, make one *centner;* and 1000 kilogrammes one *tonne*.

RELIGION AND EDUCATION.—At the census of 1875 the German Empire contained 26,718,823 Protestants, 15,371,227 Roman Catholics, 116,735 Christians of other denominations, and 520,575 Jews. The Protestants outnumbered the Roman Catholics in the Prussian provinces of Schleswig-Holstein, Pomerania, Brandenburg, and Saxony, in Mecklenburg, the Thuringian states, and the Kingdom of Saxony, in all of which they form at least 95 per cent of the population, and also in the Prussian provinces of Prussia proper, Hanover, and Hesse-Nassau, and in Oldenburg, the Grand-duchy of Hesse, the Palatinate and Würtemberg. The Roman Catholics outnumber the Protestants in the remainder of Germany, and in southern and eastern Bavaria and the imperial territory of

Alsace-Lorraine they exceed 80 per cent of the inhabitants. In the government of the Protestant churches of Germany the synodal system, according to which ecclesiastical laws relating to these churches require the confirmation of a synod or general assembly consisting of clerical and lay members, is followed in Prussia, Bavaria, Saxony, Würtemberg, Baden, Hesse, Saxe-Weimar, Saxe-Meiningen, Oldenburg, Brunswick, Anhalt, Waldeck-Pyrmont, Lippe, and Hamburg; a purely Presbyterian form of government exists in Alsace-Lorraine, Bremen, and Lübeck, and in the rest of Germany the government is in the hands of consistories, that is, councils composed of clerical and lay members nominated by the head of the

The Brocken in the Harz Mountains.

state, who presides over the consistory. For the Roman Catholics of Germany there are five archbishoprics (Cologne and Gnesen-Posen in Prussia, Munich-Freysing and Bamberg in Bavaria, and Freiburg in Baden). There are also twenty bishoprics and three apostolic-vicariates.

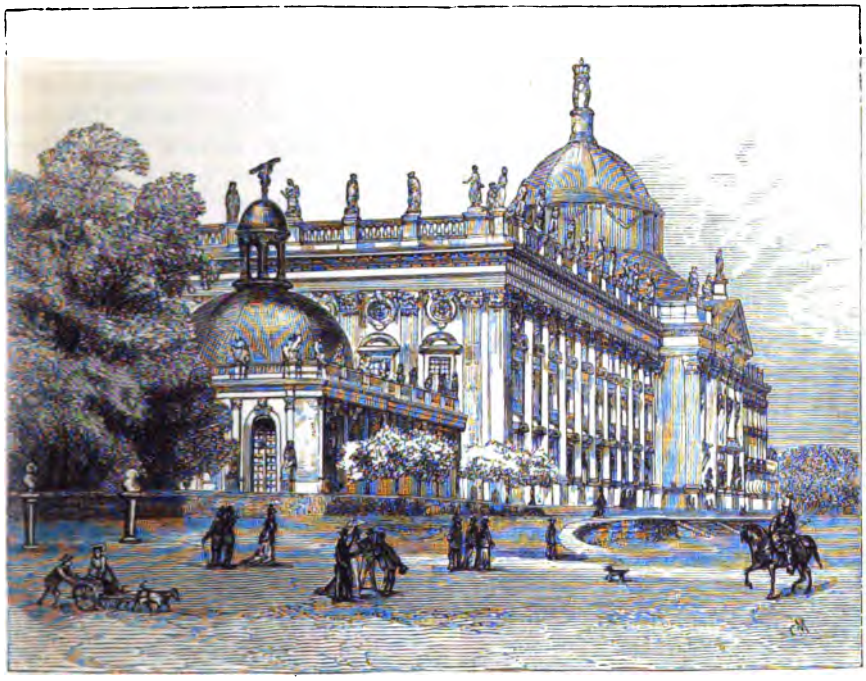
Education is compulsory throughout Germany. Every commune or parish, however small, must support at its own cost a primary school, for which the minimum range of instruction is defined. Every town must in addition institute and maintain one or more burgher-schools (*Bürgerschulen*), which supply a higher education. And above these are real-schools (*Realschulen*) giving a higher education in the branches likely to be useful in every-day life (science and art, modern languages, &c.), gymnasiums and pro-gymnasiums for the education of scholars, and crowning all the universities. Of these last there are twenty-one—at

Berlin, Bonn, Breslau, Göttingen, Greifswald, Halle, Kiel, Königsberg, Marburg, and Münster in Prussia; Leipzig in Saxony; Jena in Saxe-Weimar; Munich, Würzburg, and Erlangen in Bavaria; Tübingen in Würtemberg; Heidelberg and Freiburg in Baden; Strassburg in Alsace-Lorraine; Giessen in Hesse; and Rostock in Mecklenburg. All of these except Münster have faculties of theology, jurisprudence, philosophy (arts), and medicine. That of Münster has only those of theology and philosophy. From statistical returns relating to the recruitment of the German army it appears that all recruits of the year 1878 could at least read and write, though a small proportion were declared to be of defective education.

PEOPLE.—The great majority of the inhabitants of the German Empire belong to the German race. If language could be taken as an indication of race, the total number of non-Germans would be only about 8 per cent of the whole population; but the actual number of non-Germanic origin must be considerably greater, inasmuch as the German language has spread and is still rapidly spreading over a large non-German, principally Slavonic, population within the boundaries of the empire. Of the non-Germans still retaining their own language the greater number are Poles, about 6·5 per cent, inhabiting mainly the provinces of Posen, Silesia, and East and West Prussia. About 150,000 Lithuanians are found in the province of East Prussia, about 130,000 Wends in Silesia and Brandenburg, about 50,000 Czechs in Silesia, about 200,000 French in Alsace-Lorraine, besides a small number of Walloons in the government of Aix-la-Chapelle, and about 150,000 Danes in the north of Schleswig. The Germans proper fall, in consequence of distinctions in dialect and character, into two great divisions, the Low Germans inhabiting the northern plain and the north-west of the mountainous region and speaking the *Plattdeutsch* dialects, more closely allied to Dutch and even English than to the literary language of modern Germany, and the High Germans inhabiting the rest of Germany and speaking dialects from one of which the literary language, the language of the educated classes wherever German is spoken, is descended. The principal Low German tribes are the Frisians, occupying the maritime tract from Holland to Schleswig, the people of the Lower Rhine, the Westphalians, occupying not only the province of Westphalia but also the region to the east as far as the Weser, and the Lower Saxons in Hanover, Schleswig-Holstein and Brunswick, as well as in Mecklenburg, Pomerania, Brandenburg, and a large part of Prussia proper, which were wrested from Slavonic tribes and Germanized by the Lower Saxons. The principal High German tribes are the Upper Saxons (including the Thuringians, the inhabitants of the Harz Mountains, and the German Silesians), the Franconians, inhabiting the region extending from the Fichtelgebirge and the Böhmerwald to the left side of the Rhine (the Palatinate and Lorraine), and from the frontiers of Hesse to the neighbourhood of the Danube; the Alemanni and Suabians, the former in the upper part of the Black Forest and in Alsace, the latter in the region lying to the north and east of these localities; and the Bavarians in the south-east corner of Germany.

The density of the population varies greatly in different parts of the empire.

It is least in the maritime provinces with the exception of Schleswig-Holstein, and greatest in the kingdom of Saxony, where the population is denser even than in England and Wales. The tendency of the population to become agglomerated in large towns is observable in Germany also. At the last census the number of towns with a population exceeding 100,000 was fourteen,—Berlin, Hamburg, Breslau, Munich, Dresden, Leipzig, Cologne, Königsberg, Frankfort-on-the-Main, Hanover, Stuttgart, Bremen, Danzig, and Strassburg. For many years back a considerable emigration has been taking place from Germany.



Potsdam, New Palace.

Two periods have been noted in which emigration was peculiarly rapid, the first from 1852 to 1854, the second from 1866 to 1873. In the former period the emigrants principally belonged to south-western Germany, the region of small landed properties; in the second chiefly to the Baltic provinces, the region of great landed estates. In 1872, in which emigration attained its highest pitch, the number of emigrants was equal to about four for every thousand of the population. In Mecklenburg the number of emigrants was so great as to bring about a decline in the population of both sections between the census of 1871 and that of 1875. In 1879 and 1880 the number of emigrants was again very high. The chief destination of the emigrants is the United States.

CONSTITUTION.—The constitution of the German Empire is based upon the decree of the 16th of April, 1871, which took effect on the 4th of May following.

The presidency of the empire belongs to the crown of Prussia, to which is attached the hereditary title of *German Emperor*. The seat of government is Berlin, and the principal palaces of the emperor are at Berlin and Potsdam. The legislative authority is vested in the Bundesrath and the Reichstag. The prerogatives of the emperor are to represent the empire in its relation to other states, to declare war and conclude peace in name of the empire, to contract alliances and conclude treaties with foreign states, to accredit and receive ambassadors. The assent of the Bundesrath is, however, necessary to a declaration of war, unless the imperial territory be invaded or its coasts attacked. The **Bundesrath** consists of representatives of the different members of the empire, 58 in all. Of these 17 are returned by Prussia, 6 by Bavaria, 4 each by Saxony and Würtemberg, 3 each by Baden and Hesse, 2 each by Mecklenburg-Schwerin and Brunswick, and 1 each by Saxe-Weimar, Mecklenburg-Strelitz, Oldenburg, Saxe-Meiningen, Saxe-Altenburg, Saxe-Coburg-Gotha, Anhalt, Schwarzburg-Rudolstadt, Schwarzburg-Sondershausen, Waldeck, Reuss (older line), Reuss (younger line), Schaumburg-Lippe, Lippe-Detmold, Lübeck, Bremen, and Hamburg. The **Reichstag** is elected by secret voting in all the states of the empire. The mode of election is regulated by the law of May 31, 1869, according to which every German above twenty-five years of age has a right to vote in the state in which he resides. Members of the army and navy cannot exercise their right of voting as long as their period of service lasts. Anyone may be returned to the Reichstag who has the right of voting, and who has belonged for at least a year to one of the German states. As a rule, one member is returned to the Reichstag for every 100,000 of the inhabitants of each state, but every member of the empire sends at least one deputy, even although its population may not reach that number. Proposals of laws are laid before the Reichstag by members of the Bundesrath, or by commissaries appointed by it. Every member of the Bundesrath has the right of appearing in the Reichstag, and has a right to be heard there at any time to represent the view of the government. No one can at the same time be a member of the Bundesrath and the Reichstag. The Reichstag lasts for three years. To dissolve it within that period a decree of the Bundesrath and the assent of the emperor are necessary. In case of a dissolution new elections must take place within sixty days, and the new Reichstag must meet within ninety days. Disputes between two or more states of the empire, in so far as the common law courts are incompetent to deal with them, may be settled by the Bundesrath on an appeal being made to that body by either of the parties to the dispute. States belonging to the empire which do not fulfil the obligations imposed on them, according to the constitution, may be compelled to carry them out by an *execution*, which is decreed by the Bundesrath and carried into effect by the emperor.

The empire has the sole right of legislating on all matters connected with the army and navy, the finances of the empire, commerce, posts and telegraphs (except in Bavaria and Würtemberg), railways, in so far as they are deemed necessary for the defence of the country, and proposed modifications of the con-

stitution of the empire. The following matters are not dealt with by the empire alone, but belong to the legislation exercised in common by the empire and the separate states composing it, in such a manner, however, that the laws of the empire always take precedence over those of individual states: the laws relating to the right of changing one's residence, to domicile, the rights of citizenship, &c., the general arrangements as to banking, patents, the laws for the protection of intellectual property, the administration of the railways, penal law, commercial law, and the law of exchange, civil procedure, &c. &c.

The revenue of the German Empire is derived from various sources, principally from the customs duties collected throughout the Zollverein, from the excise duties on beet-root sugar, salt, and tobacco raised in all the states constituting the Zollverein, from those on malt in all except Bavaria, Würtemberg, Baden, and Alsace-Lorraine, and from those on spirits except in the first three; from the posts and telegraphs (except in Bavaria and Würtemberg), and from the payments made by each state in proportion to its population, and called matriculation contributions (*Matricularbeiträge*). The chief item of expenditure is on military administration, which absorbs about two-thirds of the revenue.

Service in the army or navy is obligatory on all men in Germany capable of bearing arms from the 1st of January of the year in which each man completes the twentieth year of his age. Of the whole period of service in the army or navy seven years must be passed in the standing army or in the fleet, and during three of these years continuous active service is required. During the remaining four years the members of the army or navy belong to the reserve, and are only called out for yearly drill, or in case of necessity. The next five years are passed in the Landwehr or Seewehr (land or sea defensive forces), the members of which may be called out only twice for training during their period of service. Those who volunteer for four years of active service in the cavalry are only required to serve three years in the landwehr. Young men above seventeen years of age, who are able to pass an examination upon general subjects, and who volunteer for active service in the army, and agree to equip and maintain themselves during the time that their active service lasts, are admitted into the reserve after one year's continuous service. A similar regulation applies to young sailors by profession and marine engineers, but these are not required to equip and maintain themselves. The officers of the reserve, landwehr, and seewehr are selected from such volunteers. All men capable of bearing arms not belonging to any other division of the army or navy are enrolled in the Landsturm, which is called out only in case of the invasion of the territory of the Empire. "It is calculated," says the Statesman's Year-Book, "that . . . Germany may place in the field at any time two millions and a half of armed men, without drawing upon the last reserves."

DIETS OR LEGISLATIVE ASSEMBLIES OF THE SEPARATE STATES.— Six of the states of the German Empire, namely, Prussia, Bavaria, Saxony, Würtemberg, Baden, and Hesse, have **two chambers** in their diet. Of these Prussia and Saxony have in their upper chamber members sitting by a hereditary title, members in virtue of their office, members nominated by the sovereign for life,

representatives of the wealthy classes, and of the universities and some other foundations, and the burgomasters of the large towns; Baden and Hesse have members belonging to all these classes except the last; Bavaria has no representative members nor burgomasters; and Würtemberg has only members sitting by hereditary title and members nominated for life. The members of the lower chamber are elected in Prussia and Bavaria by the people generally; in Würtemberg they are elected in certain proportions by the equestrian order (including the wealthy classes), the principal towns, the rural districts, and by the clergy and university of Tübingen; in Hesse by the same classes, except that there are no clerical or university members; in Saxony and Baden only by the principal towns and rural districts. All the other states of Germany have a diet of only one chamber, and in most of them it consists of representatives of the nobility and large proprietors, the principal towns and the rural districts, in some cases with members nominated by the prince, or elected by the clergy, or sitting by some other title. In Oldenburg, Saxe-Coburg-Gotha, and Waldeck they are elected by the people generally; in the two Mecklenburg duchies by the equestrian order and privileged towns; in the free city of Lübeck they are elected by all members of the guilds; in those of Bremen and Hamburg partly by sections of the community, partly by the community generally. In both cities less than half the members are elected by the whole body of tax-paying citizens; and of the remainder more than a half in Bremen are elected by the merchants, about a fourth by common traders and shopkeepers, and the rest by citizens who have studied at a university; while in Hamburg the majority of those not elected by the citizens generally represent various guilds, corporations, and courts of justice, and the remainder are returned by those citizens who own property in the city to a certain amount. Direct voting is the rule in Saxony, Würtemberg, Saxe-Meiningen, Saxe-Altenburg, Schwarzburg-Rudolstadt, the two divisions of Reuss, Lippe-Detmold, Schaumburg-Lippe, and the free towns, as well as in all elections of representatives of the equestrian order and the wealthy classes, and in Brunswick of representatives of the clergy. In all other cases the mode of election is indirect, that is, the original electors choose the actual voters, and these again elect the members of the chambers.

HISTORICAL SKETCH.—In the time of the Romans the territory occupied by Germanic tribes was all that part of Europe lying to the north of the Rhine and Danube and west of the Vistula, including Denmark and Southern Scandinavia, together with a portion of territory on the Baltic east of the Vistula. In the time of Charles the Great (Charlemagne—see under FRANCE) the territory in German occupation was considerably abridged, Slavonic tribes having penetrated to about 30° E. lon. A large part of this area still remains in the occupation of Slavonic people, while the rest has been gradually wrested from the Slavs and re-Germanized. (See above, section on People.) After the final division of the empire of Charles the Great towards the close of the ninth century the Germanic tribes, exclusive of those belonging to Denmark and Scandinavia, formed a separate kingdom, in which the royal dignity very soon became elective. In 962 the German king Otho, claiming to be the successor of Charles the Great,

added the greater part of Italy to his dominions, and was crowned emperor at Rome by the pope, thus founding what is known as the Holy Roman Empire. In the middle ages this was the most powerful dominion in Europe, and at its most flourishing period, the time of the Hohenstaufen emperors in the twelfth century, it embraced the whole of modern Germany to within a short distance of the Oder on the east, together with Austria proper, Bohemia, Moravia, Styria, and Illyria, Northern and Middle Italy, Alsace, Lorraine, and the Netherlands. The empire did not, however, consist of a homogeneous whole, but was composed of a large number of different dominions, some small and some large, under the government of hereditary dukes, margraves, landgraves, &c., or ecclesiastical dignitaries (bishops and archbishops), together with a considerable number of free towns, which were said to be directly under the empire, that is, not under the domination of any minor prince but rendering allegiance to the emperor alone. All these princes and ecclesiastical dignitaries acknowledged the supremacy of the emperor, but were more or less independent sovereigns in their own lands. Assembled in diet together with representatives from the free towns they formed an imperial council, and such diets were held at irregular intervals at various places on the summons of the emperor. By the beginning of the fourteenth century the right of electing the emperor had come to be vested in seven princes, three ecclesiastical (the archbishops of Cologne, Trier or Trèves, and Mainz), and four secular (the rulers of the Rhine Palatinate, Saxony, Bohemia, and Brandenburg), and in 1356 a decree of the emperor Charles IV., known as the Golden Bull, definitely conferred the right of election on these seven alone, who bore the title of electors (*Kurfürsten*). By this time the extent of the empire was considerably curtailed. Little authority was exercised in Italy after the middle of the thirteenth century, and in the fourteenth the same emperor who issued the Golden Bull sold the imperial rights in Italy to numerous towns and princes. Switzerland also had virtually ceased to be a member of the empire since about the beginning of the same century. Extensive changes were made in the composition of the empire by the treaty of Westphalia in 1648 concluding the Thirty Years' War. Alsace was then ceded to France, and a considerable tract in the north was ceded to Sweden, which had played an important part in that war. The Napoleonic era was a period of still greater change, and though many of the arrangements made at that time were short-lived others have proved permanent. In 1801 the treaty of Lunéville extended the boundaries of France to the Rhine, and in 1803 a decree of the empire passed under the influence of Napoleon abolished all ecclesiastical dominions and a great many secular ones, and out of these confiscated territories gave compensation to the more important states that had suffered loss by the extension of the boundary of France in the treaty of Lunéville. Further changes were made in the peace of Pressburg in 1805, and on the formation of the Confederation of the Rhine under the auspices of Napoleon in 1806. Though on the fall of Napoleon the Confederation of the Rhine came to an end and France was restricted to its old boundaries, all the ecclesiastical and most of the other dominions extinguished by the decree of 1803 remained abolished, and many of the acquisitions of territory made by different

states in consequence were maintained. The final distribution of territory among the German powers after the troubles of this era was made in the first and second treaties of Paris in 1814 and 1815, and by the Congress of Vienna in the same years. Meantime the old empire had come to an end by the resignation, in 1806, of the last holder of the dignity, which had for hundreds of years previously been virtually hereditary in the house of Austria. A Germanic Confederation was formed by the Congress of Vienna to take the place of the old empire, but this was abolished in 1866 after the Austro-Prussian war, and a North German Confederation was formed, which, by the adhesion of the southern states (exclusive of Austria) in the course of the Franco-German war of 1870–71, was transformed into the new German Empire. The dignity of emperor was made hereditary in the royal house of Prussia, and the first emperor was proclaimed at Versailles on the 18th of January, 1871.

PRUSSIA.

The Kingdom of Prussia (in German, *Preussen*) is the leading state of the German Empire, and comprises the greater part of North Germany, forming a tolerably compact territory in the north. It extends through the whole length of Germany from east to west, but is interrupted by various smaller states; its breadth on the meridian of 17° 35′ is about 323 miles.

POLITICAL DIVISIONS.—The name, area, and population of the provinces comprising the Kingdom of Prussia are given in the following table:—

Area and Population according to the census of 1880 of the Provinces of Prussia.

Provinces.	Area, sq. miles.	Population, 1880.
East Prussia (Ostpreussen), ...	14,277	1,930,498
West Prussia (Westpreussen), ...	9,846	1,403,498
Brandenburg	15,405	3,383,560
Pomerania (Pommern), ...	11,625	1,538,454
Posen, ...	11,179	1,700,943
Silesia (Schlesien), ...	15,554	4,003,223
Saxony (Sachsen), ...	9,746	2,311,067
Schleswig-Holstein, ...	7,061	1,124,862
Hanover (Hannover), ...	14,782	2,117,629
Westphalia (Westfalen), ...	7,799	2,042,672
Hesse-Nassau (Hessen-Nassau), ...	6,048	1,553,344
Rhineland (Rheinprovinz), ...	10,415	4,073,738
Government of Hohenzollern, ...	441	67,579
Total,.....	134,178	27,251,067

PHYSICAL FEATURES.—Prussia is naturally divided into two great sections, the one of which, by much the larger of the two, belongs to the great European plain, and may be called the Prussian plain, while the other in the south-west belongs to the German plateau, and may be called the Prussian table-land.

The **Prussian plain** may be said to embrace the whole of northern and eastern Prussia, from Holland on the west to Russia on the east. This extensive region is considerably elevated in the south and south-west, and descends thence at first rapidly, and afterwards very gradually, towards the Baltic and the German Ocean. The loftiest summits are on the southern frontiers of Silesia, where the Riesengebirge and the Sudetes form the boundary between it and Bohemia and Moravia, and send northwards several ramifications which, without attaining a very lofty height, form wild and romantic scenery, averaging about 2220 feet in height, but lowering northwards to an average of 900 feet; after which the surface loses its hilly character, and begins to form extensive plains. In the south-west, the only other quarter which can be considered mountainous, ramifications of the Thuringian Forest and of the Harz appear, and cover a considerable portion of the southern part of the province of Saxony, but here the average height does not exceed 1000 feet, and soon diminishes to less than 500 feet. The large space extending between the northern foot of these mountain districts and the shores of the Baltic does not present the appearance of a monotonous flat, but though generally low and tame, heathy and swampy, is often finely diversified, and even rich in scenes of rural beauty. Ultimately, however, in approaching the shores of the Baltic and North Sea, the general level becomes so low that large tracts are saved from inundation only by low sand-hills or banks of gravel which the waves have thrown up.

The **Prussian table-land** occupies the south-west of the kingdom, and consists of the greater part of Westphalia, the Rhenish province, and Hesse-Nassau. In this division the mountains, though far less elevated than those on the frontiers of Silesia, stretch across the country in all directions, and form numerous valleys, one of which, that of the Rhine, here occupies no inconsiderable portion of the whole surface, and in point of fertility and beauty is not surpassed by any other valley in Europe. Towards the north of the Rhine valley a mountain range of moderate elevation, forming a continuation of the Wesergebirge, stretches across the governments of Minden and Münster. To the south of it that of the Teutoburgerwald extends in a north-west direction, and near Bielefield attains its loftiest height, not exceeding 1030 feet. Still further south the Sauerland or Süderland Mountains appear, taking in the east the name of the Rothlager or Rothhaar, and there attaining their highest elevation, which, in the Astenberg, is 2625 feet, and in several other summits exceeds 2000 feet. The last range, on the east or right bank of the Rhine, is the Westerwald, which reaches the height of 2000 feet. A part of this range, forming its western termination, stretches along the banks of the Rhine, and presents the remarkable summits known by the name of the Siebengebirge. On the left bank of the Rhine, and on the southern part of the Rhenish province, the principal mountains are the Eifelgebirge, which have their greatest breadth between Andernach and Bonn, stretch from the Rhine westward for about 45 miles, and, though generally low, attain the height of 1590 feet; and the Hundsrück, occupying a large space between the Moselle and the Nahe, and attaining, in the loftiest summits of the Iderwald and Hochwald, the respective heights of 2260 and 1560 feet.

RIVERS AND LAKES.—All the rivers of the Prussian monarchy belong to the basins of the Baltic Sea and the North Sea; and the country is traversed by all the principal rivers of Germany except the Danube. The table-land belongs almost entirely to the basin of the Rhine, though a considerable space in the north-west is drained by the Maas or Meuse and its tributaries. Lakes abound in almost every province of the Prussian plain, but more especially in those of East and West Prussia, Pomerania, and Brandenburg. In East Prussia alone 115 have been counted, though their extent individually is so small that the whole area occupied by them is not more than 320 square miles.

GEOLOGY.—Tertiary strata prevail over almost the whole of the level portion of Prussia. In the mountainous districts of the eastern part of the monarchy the loftier summits are composed of granite, gneiss, mica schist, porphyry, diorite, &c. These are most largely developed in the mountains of Silesia, but are also seen in the Saxon government of Erfurt, in the Brocken, forming part of the Harz, and in isolated spots in the vicinity of the town of Halle. Metamorphic rocks, clay-slate, and limestone extend along the frontiers of Austrian Silesia into the Upper Silesia of Prussia as far as the Oder, and also north of the Riesengebirge. Rocks of the same formation occupy a considerable part of the flatter districts of Prussian Saxony, more especially in the vicinity of Magdeburg and along the banks of the Ohre. Secondary formations, composed of mountain limestone and the various strata of the carboniferous system, occur in Silesia, chiefly in two localities in Upper Silesia along the frontiers of Cracow and Russian Poland, and among the mountains in the county of Glatz, and towards the Riesengebirge. Rocks still higher in the series, and including the new red sandstone and others, enter Prussian Silesia from Poland on the east, and extend west to the Oder near Krappitz, and to a considerable distance inland. They also occupy an extensive tract in the province of Saxony, covering part of the terraces of the Thuringian Forest, and stretching along the northern and eastern foot of the Harz to the banks of the Saale, Elster, and Elbe. Chalk and its accompanying beds occur in many different localities, more especially on the north side of the Harz, and in Silesia, both in its higher districts and on the frontiers of Poland. In the island of Rügen it forms the romantic cliffs of Stubbenkammer and Arkona.

In the table-land of Prussia there are no primitive rocks of granite, gneiss, and mica slate. The prevailing rocks, particularly in the south, are volcanic, and consist chiefly of basalt, augite, porphyry, and similar volcanic products of the tertiary period. The secondary formation, and more especially mountain limestone and the overlying strata of the carboniferous system, are largely developed in the north, at the north-western foot of the Sauerlandgebirge, along the Ruhr between Arnsberg and Düsseldorf in the west, at the northern foot of the Eifel, near Aix-la-Chapelle, and in the south, in the government of Trier, particularly in the neighbourhood of Saarbrück. The new red sandstone, with its accompanying rocks and fossils, occupies a considerable part of the higher districts in the government of Minden, and also occurs on parts of the Eifel, and along the Moselle and Saar. Lias and oolite are found in the north among the hills which

lie between the Weser and the frontiers of Hanover. The chalk formation has its largest development in Westphalia, more especially on the western side of the Teutoburgerwald, in the Sauerlandgebirge, between the Ruhr and the Lippe.

CLIMATE.—The Kingdom of Prussia, extending as it does over 6° of latitude and about 16° of longitude, and consisting in one direction of lofty mountains, and in another of low flats stretching along an inland sea and inclosing between them large tracts of undulating land, must necessarily present considerable diversities of climate. The average of a number of places situated in the Prussian plain between the highest and lowest latitudes gives a mean annual temperature of 52° Fahr. At Berlin from 159 to 160 days of the year are rainy, from 33 to 34 obscured with mist, and 17 stormy. Within the same ranges of latitude, and at nearly equal heights above the sea-level, the climate of the western is superior to that of the eastern division of the monarchy. The mean annual temperature is about 1° higher, the winter is milder, and the summer cooler, and the range of the thermometer is accordingly confined within narrower limits. The fall of rain, however, is greater, averaging 20 inches in the west and only 15 inches in Silesia and the eastern provinces. This, however, cannot be considered a disadvantage, as the larger quantity of the western is by no means in excess, and only tends to make vegetation more luxuriant.

AGRICULTURE.—The land in Prussia is much subdivided, especially in the more populous districts. About 600,000 of the landowners possess as much land as suffices to support themselves and their families, about seven acres in fertile districts up to as many as twenty acres in less productive regions. In purely agricultural districts paupers are said to be very rare and beggars unknown. The whole monarchy is situated between the parallels of latitude under which all the ordinary cereals are easily matured, and there is nothing in the elevation of the surface, except in a few particular localities, to unfit it for general cultivation. In the more southern portions, even though only to a limited extent, the vine thrives well, and yields some wines of good repute. The soil includes all varieties, from light sands, almost carried by the wind, to the most obdurate clays, but has been subdivided into the three classes of wheat land, light loams of middling quality, and sandy or stony land. The wheat land, which is in most cases remarkably productive, is found chiefly in the Prussian provinces near the frontiers of Poland, and along the banks of the Memel and Pregel, till the coast is approached, when the sandy soil begins to prevail in the province of Posen, in the government of Breslau, on the east bank of the Oder, and generally throughout Silesia, between the Oder and the mountains. The loams of middling quality prevail in the northern part of Silesia, generally throughout the province of Brandenburg, in the south-east and north of the province of Saxony, in the north of Westphalia and along the left bank of the Rhine in the south of the Rhine province. The sandy and stony land of barren quality is found in large continuous flats in East Prussia, where, for the most part, it forms the northern boundary of the heavy wheat land. It prevails also in West Prussia, generally along the shores of the Baltic, and along the frontiers of Silesia, particularly in the southern and eastern districts. In the interior of

the province of Brandenburg, too, though the very heart of the monarchy and in the environs of the capital, the soil belongs decidedly to this class, consisting of immense tracts of sand which spread out like a sea, while occasional patches of middling or even fertile wheat land rise up and appear like islands in the midst of it. The yearly produce of wheat, after satisfying the home consumption, leaves on an average a considerable surplus for export. The produce of rye, barley, and oats is three times as great as that of wheat, but the consumption of these kinds of grain being far greater leaves only about the same quantity for export. Another very important crop, the culture of which is more or less extensive in every district, is that of potatoes. Of these a great proportion are consumed by the distilleries alone. Hemp and flax are also very important crops, more especially the former, which furnishes large supplies for the home manufactures, though a large quantity still requires to be imported. Tobacco also is grown to a considerable extent. Anise and cummin are cultivated on a large scale, particularly in Saxony and Brandenburg. Oil plants are also important objects of culture, both for their oil and for their seed. The latter, particularly linseed, forms an important article of export from Eastern Prussia, while almost equally large exports of clover and other hay seeds take place from Brandenburg and the Rhenish province. To the latter province also the culture of the vine is chiefly confined. Beet-root is cultivated to a great extent, and a large proportion of it is used in the manufacture of sugar. In raising these various crops the system of agriculture pursued, though much improved in recent times, is still very defective, and not only falls far short of that common in the best cultivated districts of our own country, but is surpassed by many of those on the Continent. The same remark applies to the breeds of domestic animals, in which great improvement still requires to be made, though much has been done by the government, more especially in the case of horses, by the establishment of breeding studs in different localities, and on a general system.

Limburg, on the Lahn, Hesse-Nassau.

MINERALS.—The most important of these are coal, lignite, iron, lead, zinc, and copper. The coal produced in Prussia is about 93 per cent of that produced in the whole empire. It is found in Upper and Lower Silesia, in the provinces of Saxony and Hanover, but above all, in Westphalia and the province of the Rhine. The mines of the Ruhr-Düsseldorf district, lying in both the last two provinces, are the most productive in the kingdom, contributing about half the entire produce. Those of the river Saar, in the south-west angle of the Rhenish provinces, though less extensive, are next in productiveness, and supply about a sixth of the entire produce. Coal is exported to Southern Germany, France, and Switzerland. Lignite is still more widely diffused, but the principal beds are in the province of Saxony on the Saale, the Mulde, and the lower Bode; and in Brandenburg on the Oder and elsewhere. The most important beds of iron ore are in the circle of Siegen (in Westphalia), in the province of the Rhine, on the Lahn in Hesse-Nassau, and in Upper Silesia. Lead is found in Silesia, the Rhenish province, Westphalia, and Saxony; zinc in the same localities, except Saxony; and copper, along with which silver is very frequently found, is worked chiefly in the district of Mansfeld in the province of Saxony, and more partially in some localities in Westphalia, and at Tarnowitz in Upper Silesia. Among other minerals the most important are cobalt, arsenic, antimony, manganese, rock-salt, and salts of potash (chiefly at Strassport in Saxony), copperas, gypsum, and several varieties of excellent building stone. Marble is obtained in the provinces of Saxony and Silesia, at the small town of Limburg in Hesse-Nassau, and elsewhere. Amber is found in large quantities along the shores of the Baltic, and also obtained by digging at some distance inland.

MANUFACTURES.—These have made great progress, and are not confined to any particular districts, but generally diffused over all the provinces. At the head of the ordinary tissues stands linen, produced chiefly in domestic looms, in the provinces of Silesia, Brandenburg, and Westphalia, and yet in sufficient quantity to leave a surplus for export. The tissue next in importance is cotton, the manufacture of which has its chief seat on the Rhine, particularly in the neighbourhood of Düsseldorf, but is also carried on to a considerable extent in Silesia, particularly in the government of Breslau, and also in the province of Brandenburg. The woollen, like the linen manufacture, is carried on to a large extent domestically, chiefly in the eastern part of East Prussia, where the peasantry weave enough of coarse woollens to supply their own wants; but the manufacture, properly so called, has its chief seats in Brandenburg and the province of the Rhine. Silk and velvet are produced mainly in the Rhine province and at Berlin. In connection with the above tissues, and properly forming branches of the same manufactures, vast quantities of linen, woollen, and cotton yarn are spun. The first continues to be spun chiefly by hand, but the woollen yarn is chiefly, and the cotton entirely, spun by machinery. The former has its principal seat in the province of Brandenburg, especially in the government of Frankfurt, and after it in the Rhine province. The cotton-mills are situated chiefly in the basin of the Rhine, and to a more limited extent in Silesia. The manufactures in metal rank next in importance. In iron and steel ware the

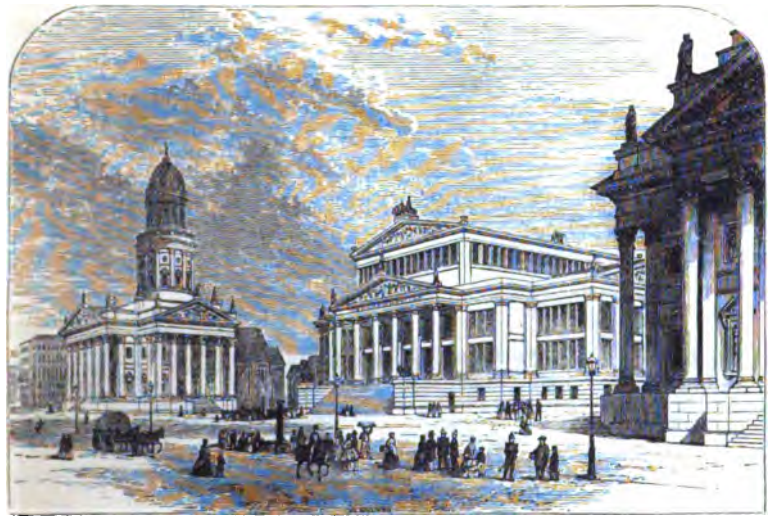
first place belongs to the Rhine province and the Westphalian government of Arnsberg. Among particular localities may be specified Solingen for its fine saws and tools, Aix-la-Chapelle and Burtscheid, Altena and Iserlohn for needles and pins, Remscheid and Hagen for locks and various similar kinds of hardware. The leather manufacture is also important, and includes, in addition to ordinary leather, the finer varieties of red and white cordovan, and parchment. Pottery in all its varieties forms an important branch of industry. For porcelain and the finer kinds of ware Berlin and St. Martin, near Trier, are the most celebrated localities. The most important paper-mills are in Silesia, Saxony, and Westphalia; but the quality of the paper is still far inferior to that made in Great Britain, France, and Switzerland. Other manufactures carried on to such an extent as to be of national importance are beet-root sugar, chocolate, chicory, chemical products, and above all, tobacco, beer, and spirits. The manufacture of tobacco is carried on in very extensive factories, in the Rhenish province, in Brandenburg, and Saxony. Of the breweries the Rhine province has above one-fourth, Westphalia and Silesia each one-sixth, and Saxony one-eighth. In the distillation of spirits potatoes form 75 per cent of the raw materials employed. Sparkling wines are made near Coblenz and elsewhere. In 1875 manufacturing industries employed directly about one-eighth part of the population.

FISHERIES.—The fisheries of Prussia are important, both those of the coast and those of the inland waters. The herring is caught all along the Baltic coast from the Gulf of Danzig to Schleswig; and flounders, torsk, salmon, mackerel, and eels are also caught in the Baltic. In the North Sea haddock and oysters are the chief products, oysters being bred in large numbers on the west coast of Schleswig. The inland fisheries are greatly promoted by artificial breeding establishments.[1]

GOVERNMENT, &c.—Prussia is a monarchy hereditary in the male line, and from the absence of recognized constitutional checks was, previously to the European revolutionary movement in 1848, in theory absolute. The present constitution was mostly framed by the government, with the aid of the constituent assembly, in 1849, and proclaimed 31st January, 1850. It has been modified by royal decrees, of which no fewer than thirteen have been issued between April, 1851, and April, 1873. The king, whose functions are both executive and legislative, attains majority at the age of eighteen. He is assisted by a council of ministers appointed by royal decree. A representative assembly composed of two chambers, the second of which is entirely elective, shares the legislative authority with the king. (See under GERMANY.) The primary qualification of electors is based on taxation, and is the same as for municipal elections. The primary electors are divided into three classes, according to the amount of their taxation. The first division consists of those who pay the highest taxation, the second who pay the medium, and the third of those who pay the lowest amounts; and the numbers in each division are determined by the total amount of taxation, which is equally distributed between the three

[1] For headings omitted in the notices of the several states of Germany the reader is referred to the general notice of the German Empire,

divisions. The indirect electors (*Urwähler*) elect the direct electors (*Wahlmänner*), who choose the representatives. The deputies are chosen for three years, and the chambers are regularly convoked each November. Members of the second chamber receive during the session twenty marks a day, acceptance of which is obligatory. The principal sources of revenue are state railways, mines, and factories (chiefly iron furnaces, mills, and forges, and salt-works), crown lands and state domains, and forests, stamps, the share due to Prussia of the imperial customs and taxes, and direct taxes on land, houses, incomes, trades (licenses), besides one or two others, among which is what is called a class-tax (*Klassensteuer*), which is a graduated tax upon those whose incomes are below a



The New Church, the Theatre Royal, and part of the French Church, in the Schillerplatz, Berlin.

certain amount, based on an estimate of their means according to their position. Among the minor sources of revenue is a state lottery. The principal head of expenditure is public works.

CHIEF TOWNS.—Berlin, the capital of Prussia and the seat of government of the whole German Empire, stands in the centre of the province of Brandenburg, and occupies an area of about 20 square miles on the banks of the Spree in the midst of a vast sandy plain little favoured by nature. In the beginning of the twelfth century the site was occupied only by the two small Wendish fishing villages of Kölln and Berlin, which having been gradually transformed into German colonies were two centuries later united under one municipal government and became a member of the Hanseatic League. About the end of the fifteenth century Berlin was chosen as the residence of the electors of Brandenburg, but at that time counted no more than 12,000 inhabitants, and its rapid growth in population took place mainly in the present century. In 1817 it contained only 188,000 inhabitants; at the census of 1875, 967,000;

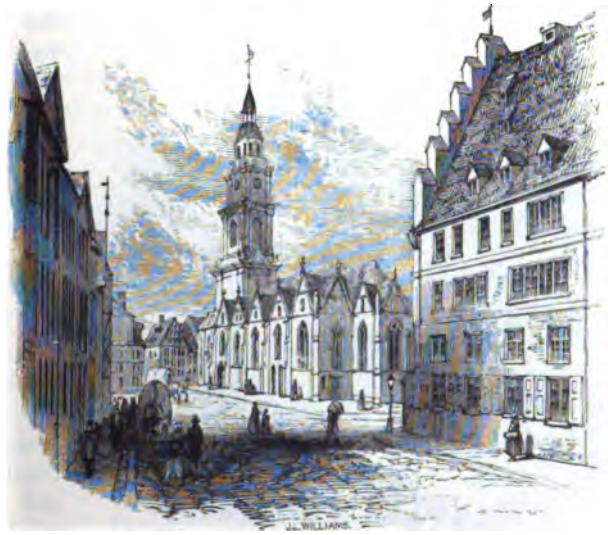
by the census of December 1, 1880, 1,118,630—about the same as Vienna. Except in the new fashionable quarter of Schöneberg in the south-west, which is semi-rustic in character, and in one spacious street planted with rows of trees and bordered with magnificent public buildings, the celebrated Unter den Linden, in the heart of the town, the external appearance of Berlin is not very attractive. Its streets are for the most part long, wide, and regular, but the regularity is too uniform to excite any interest. As in London, the houses are mostly built of brick and often coated with plaster, but in many cases present an ugly blotched appearance from the plaster being stripped off in places by the

The Fisher Gate, Frankfort-on-the-Main.

action of the weather. About 20 miles south-west of Berlin is Potsdam (45,000), a favourite royal residence, which may be compared in some respects to Versailles, but is distinguished from the latter place by the essentially military air by which it is pervaded.

Breslau (in 1880, 272,000) in Silesia, on the Oder, is the second town in Prussia in point of population. It is the ancient Slavonic town of Wratislawa. From the thirteenth century downwards it was one of the leading markets of the Hanseatic League, and it is still a great seat of commerce and manufactures. Its cathedral was built at the close of the twelfth century on the model of that of Rouen. Its university was transferred here from Frankfort-on-the-Oder in 1811. Cologne (German, *Köln;* in 1880, 144,000), the principal town in Rhenish Prussia and the third largest town in the monarchy, is, as its name indicates, of Roman origin, Cologne being a corruption of the first part of its Roman name, Colonia Agrippina. It attained its greatest splendour as a member of the Hanseatic League, to which it belonged from the thirteenth century; and its archbishop

was one of the three ecclesiastical electors. Its prosperity declined with the growth of the commercial cities of Holland in the sixteenth and seventeenth centuries, but from 1815 it has again steadily and rapidly advanced. The foundation stone of its celebrated cathedral was laid on the 14th of August, 1248, and the building of the edifice, after being interrupted for exactly five centuries, was resumed in 1822 and was completed only in 1880. The work was virtually completed on the 14th of August, but the last stone was laid with ceremony on the 15th of October. West of Cologne and near the western frontier of Prussia is another ancient Roman town, Aix-la-Chapelle (German, *Aachen;* in 1880, 85,000), the favourite residence of Charles the Great, and the place of coronation of the German emperors from the ninth to the middle of the sixteenth century. The large octagonal chapel of its cathedral was built by Charles, who is buried within it. About twenty-five miles north-east of Cologne in the same province lie the two adjacent manufacturing towns of Barmen (in 1880, 96,000) and Elberfeld (93,000), forming together the centre of a district which has been called the Prussian Lancashire. Their prosperity dates only from about the beginning of the present century, and originated in the establishment of bleachworks in the valley of the Wupper, an industry for which the quality of the waters of that river and the extent of the meadows on its banks admirably adapted that locality. To the west at the confluence of the Düssel with the Rhine, stands Düsseldorf, no longer a village, as its name (meaning the village on the Düssel) implies, but another busy manufacturing town, with 81,000 inhabitants. The town of Frankfort-on-the-Main (German, *Frankfurt am Main;* in 1880, 137,000), in the province of Hesse-Nassau, on the south-eastern frontier of the monarchy, has belonged to Prussia only since 1866. Till that time it was one of the free-towns of Germany, and the seat of the diet of the Germanic Confederation, for which it was chosen by the Congress of Vienna in 1815. It is still one of the leading money-markets of Europe, and about a tenth of its inhabitants are Jews, formerly confined to a single quarter, but now scattered over the town, and possessing most of the banking houses and nearly a half of the other principal commercial establishments



Church of St. Giles, Hanover.

in the city. It is the birthplace of the poet Goethe, who first saw the light here on the 28th of August, 1749. Hanover (in 1880, 123,000), on the Leine, is another town that has been in Prussian possession only since 1866, having been till that time capital of an independent kingdom, which was then absorbed by Prussia. Though diminished in dignity the town is still prosperous, and is the seat of a rapidly growing industry. Its inhabitants get the credit of speaking the best German. In the south of the same province lies the small town of Göttingen (in 1875, 16,000), with a celebrated university, founded in 1733 by George II. of England. The university is remarkably well equipped, and its library, containing 500,000 volumes and 5000 MSS., is the richest in Germany in recent literature. Magdeburg (in 1880, 97,000), in the heart of the province of Saxony, is the great central fortress of Prussia, and a town of considerable antiquity. It is memorable in history on account of its terrible sack by the army of Tilly in 1631. Königsberg (in 1880, 140,000), in East Prussia, was at one time the residence of the grand-masters of the Teutonic order of Knights to whom the surrounding territory belonged, and afterwards (from 1525 to 1618) of the dukes of Prussia, their successors. It is the place of coronation of the kings of Prussia, and the seat of a university rendered famous by the labours of Kant (who was professor here), and still much frequented. On the Vistula near the coast of West Prussia is the town of Danzig (in 1880, 109,000), said to have been founded by Goths or Danes in the sixth century, and now the principal seat of export for Prussian grain. Stettin (in 1880, 92,000), at the mouth of the Oder and the head of the Stettiner Haff in Pomerania, is the Baltic port of Berlin. Altona (in 1880, 91,000), adjacent to Hamburg, is the only important Prussian port in direct communication with the German Ocean, and since the annexation of Holstein to Prussia in 1866 has had its prosperity greatly promoted by having conferred on it the same freedom in respect of customs duties as is enjoyed by Hamburg.

Street in Göttingen.

HISTORICAL SKETCH.—The Kingdom of Prussia is of quite modern origin. Its nucleus was the electorate of Brandenburg, and at the settlement of the affairs of Germany in the Peace of Westphalia in 1648, at the end of the Thirty

Years' War, the dominions of the elector included besides the mark of Brandenburg (the northern parts of the present provinces of Brandenburg and Saxony), Pomerania east of the Stettiner Haff, the duchy of Prussia (making up the greater part of East Prussia), and some detached portions in the west. In 1700 the elector Frederick III., son of the Great Elector, received from the Emperor Leopold permission to assume the title of King of Prussia. In 1720 his son acquired from Sweden Pomerania south of the Stettiner Haff, and the next king, Frederick the Great, made the important acquisition of Silesia, the possession of which was first secured by the Peace of Breslau in 1742, and afterwards confirmed by subsequent treaties. An immense accession of territory on the east was gained by the three partitions of Poland in 1772, 1793, 1795; but in the Treaty of Vienna (1814), in which the map of Europe was rearranged after the troubles of the Napoleonic era, Prussia was allowed to retain only what corresponds to the provinces of Posen and West Prussia, but received also the greater part of the territory forming the provinces of the Rhine and Westphalia, as well as the northern half of the Kingdom of Saxony (now the south of the provinces of Saxony and Brandenburg, and the north-west of Silesia). After the Danish war of 1864 Schleswig was occupied by the Prussians, and the Duchy of Lauenburg purchased by them from the Austrians; and finally, after the war with Austria in 1866, Prussia annexed not only Holstein, which had been the occasion of the dispute, but also all the smaller states that had shown a hostile disposition towards herself. The annexations of this year comprised Hanover, Hesse-Cassel, Hesse-Darmstadt north of the Main, the city of Frankfort, besides Holstein, as already mentioned, and the principality of Hohenzollern, which already belonged to the Prussian royal family.

SAXONY.

The Kingdom of Saxony (German, *Königreich Sachsen*) lies between Prussia, Bohemia, Bavaria, and some of the smaller principalities. Its greatest length north-east to south-west is 135 miles; its greatest breadth, 75 miles. In point of area it comes after Prussia, Bavaria, Würtemberg, and Baden, among the states of Germany, in point of population after Prussia and Bavaria only.

POLITICAL DIVISIONS.—The following table gives the area and population of the four provinces or governments into which it is divided:—

	Area in sq. miles.	Pop. 1875.
Dresden, ...	1679	749,503
Leipzig, ...	1370	639,731
Zwickau, ...	1790	1,031,905
Bautzen, ...	950	339,203
Total, ...	5789	2,760,342

PHYSICAL FEATURES.—The surface, though very much broken, may be regarded as an inclined plane, which commences in the south, in the Erzgebirge

chain, and slopes towards the north. In the more elevated districts the scenery is wild, and sometimes almost desolate; while on either side of the Elbe, from the Bohemian frontier to Pirna, is a remarkable and exceedingly interesting tract, covered with fantastic sandstone formations, which has received the name of the Saxon Switzerland. Where the surface begins to lower the ramifications proceeding from the principal range form the sides of beautiful and fertile valleys, which, as they flatten down, widen out into plains well adapted for agriculture, and hence, though in the Oberwiesenthal the Fichtelberg attains the

The Little Prebischkegel, Saxon Switzerland.

height of more than 3700 feet, the mean height above the sea does not exceed 450 feet. On the Prussian frontiers, where it subsides to its lowest point, the height above the sea is only 250 feet. The loftiest summits are generally composed of granite and gneiss, and so rich in mineral products that the ores (*Erz*) contained in them have given name to the whole chain. To the east, on the right bank of the Elbe, the Erzgebirge is continued by the Riesengebirge, a branch of which, under the name of the Lausitzer-gebirge, or Mountains of Lusatia, covers a considerable portion of the east of Saxony. They nowhere reach the height of 2500 feet, though more than one summit exceeds 2000 feet. They are composed for the most part of granite, basalt, and sandstone. With the exception of a very small portion of the east, which sends its waters to the Baltic by tributaries of the Oder and Spree, the whole of Saxony belongs to the basin of the Elbe. The climate in the loftier mountain districts, and what is called the *Voigtland* in the south-west, is very cold and bleak; but with this

exception the climate is milder than that of most countries of Europe under the same latitude.

AGRICULTURE, &c.—With the exception of the lofty barren tracts already referred to, and others of a kindred nature, though less barren, since they are either covered with forests or mountain pastures, the whole surface of Saxony may be said to be under some kind of culture. The soil, however, is not in general of great natural fertility, and hence, though some of the lower grounds are very productive, the total yield of grain is scarcely sufficient to supply the wants of the dense population. The most important crops cultivated are rye and oats, barley, wheat, and potatoes. The chief subsidiary crops are pulse, rape, turnips, oil-seeds, hops, tobacco, sugar-beet, flax, teasel, madder, and other dye-plants. All the common orchard-fruits, particularly apples, pears, and plums, are very abundant. Considerable attention is paid to the culture of the vine, which occupies considerable tracts on the east bank of the Elbe, between the towns of Meissen and Pillnitz, and is also cultivated with success on the sunny slopes both to the north and the south of Dresden. The grass - husbandry also is not neglected. Many artificial meadows have been formed, and heavy crops of the finest artificial grasses—lucerne, sainfoin, clover, and rye-grass—are everywhere seen. Much of the fodder is employed on dairy stock, from which large quantities of butter and cheese of excellent quality are obtained. Large numbers of horned cattle are also fattened, and annually exported, to the number of 7000 or 8000 head, to Poland and Galicia. Sheep, for which Saxony was formerly so famous, have been less generally attended to in recent years, though by careful crossing with the merino the quality of the wool has been greatly improved, and commands a high price in the markets of the world. The only other domestic animals deserving of notice are horses and swine, of both of which superior breeds are found. Poultry, particularly geese (round Leipzig and in Upper Lusatia), are very numerous. The rearing of bees, once a very important branch of industry, has greatly declined; but that of silk-worms is still prosecuted with considerable success, particularly in the vicinity of Leipzig, Dresden, Zittau, &c. The great number of forests in Saxony naturally secures an abundance of game. The fishing in the lakes and rivers is tolerably productive, though scarcely equal

Porcelain Manufactory, Meissen.

to the consumption. Among the species of fish are shads, eels, salmon, carp, pike, and trout. In some of the streams, particularly the White Elster and its tributaries, good pearls are often found.

MINERALS.—The minerals of Saxony form, perhaps, the most important source of its wealth, and have been worked since the twelfth century. The metals comprehend silver, copper, lead, tin, iron, cobalt, zinc, bismuth, and arsenic. The fuel necessary for the smelting and refining of these metals also exists in great abundance. Not only are the extensive forests made available for this purpose, but numerous seams, both of lignite and coal, are found in various districts, and are worked to a considerable extent. All the silver, lead and copper ores are smelted at Freiberg. The quarries furnish in abundance granite, syenite, porphyry, basalt, roofing-slate, pavement, sandstone, limestone, and marble, and numerous precious stones, including rubies, sapphires, garnets, topazes, jaspers, agates, and carnelians, are found both in the Erzgebirge and in the districts of Leipzig and Meissen. Among other minerals found in Saxony the most important is salt, which is more abundant here than in any other part of the empire.

MANUFACTURES.—The woollen manufacture has long been an important industry in Saxony, but the products of this manufacture have lost much of their former reputation for superior fineness. The cotton manufacture, which a few years ago largely exceeded the woollen, has now declined, but is still important and at least rivals the latter in magnitude. The linen manufacture is chiefly carried on domestically in the eastern part of the kingdom. Of the other manufactures of Saxony the most important are damasks, lace, stockings, paper, cigars, artificial flowers, and articles in plaited straw. The manufacture of the once famous porcelain of Saxony (Dresden china) has declined so much, that, though it is still carried on at Meissen and elsewhere, it can scarcely claim to be regarded as one of the great branches of national industry.

GOVERNMENT, &c.—The government of Saxony, as fixed by a constitution granted in 1831, but subsequently modified several times, is a limited monarchy, in which the executive power is lodged solely in the crown, and the legislative power jointly in the crown and two chambers—a first and a second. (See under GERMAN EMPIRE.) Only the second chamber is elective, and all men above twenty-five who pay taxes or in any way contribute to the public burdens are electors. The members of both houses are paid for their services: those of the upper chamber receive about a pound a day; those of the lower, about ten shillings. More than half of the revenue is derived from state domains and railways.

CHIEF TOWNS.—The most important towns of Saxony are Dresden, the capital, Leipzig, and Chemnitz. Dresden (by the census of Dec. 1880, 220,000) is one of the most agreeable cities in Europe, and is often called the German Florence, a title due both to the attractiveness of its situation and to its wealth in art treasures. It stands on both banks of the Elbe, here about four hundred yards broad, and three fine bridges now connect the two parts of the town. The name of the city is of Slavonic origin, and is derived from a word signifying "a

ferry," indicating that Dresden was founded by a Slavonic tribe at one of the ferries across the Elbe. It is mentioned as a town in 1206, and became the residence of the margraves of Saxony in 1270. It was formerly fortified, but its fortifications are now replaced by promenades. Among the art treasures above referred to the most celebrated is the picture-gallery, which is the richest in Germany, and even, for Italian art, the best in Europe after those of Rome and Florence. The gems of the collection include the Sixtine Madonna of Raphael, and the Night and four other masterpieces of Correggio. Dresden also possesses one of the finest libraries in Europe, containing about 500,000 volumes (among which are about 1500 incunabula), besides pamphlets and maps. The immediate environs of the town are themselves charming, and the remarkable scenery of the

Dresden.

so-called Saxon Switzerland is at no great distance. Dresden, it may also be mentioned, is a favourite residence of Englishmen settled in Germany. Leipzig (exclusive of suburbs 149,000) is also a town of Slavonic origin, its name being derived from a Slavonic word signifying a "linden tree." It lies in the north-west of the kingdom in the midst of an extensive plain, at the meeting-place of the great roads, and now also of the principal railways, of Central and Eastern Europe. This circumstance has made Leipzig from an early period an important seat of commerce, and it is one of those towns which still continue to do a large amount of business at periodical fairs, which are held in a magnificent and spacious square overlooked on different sides by the university, the principal theatre, the post-office, and a museum. Three fairs are held annually, at Easter, Michaelmas, and the beginning of the year, the first, at which business to the amount of upwards of £1,000,000 is said to be done on an average, being the most important. The book trade is the staple trade of the place, and in this department Leipzig is the rival of London and Paris. The University of Leipzig, founded in 1409, has upwards of 100 professors, and latterly about 3000 students, and possesses a library with about 300,000 volumes and remarkably rich in

oriental manuscripts. Leipzig is the seat of the supreme courts of law of the German Empire. Chemnitz (95,000), in the middle of the kingdom, owes all its importance to its manufactures, which have been developed within the present century. It is the great seat of the cotton manufactures of the kingdom, and is hence sometimes called the Saxon Manchester.

HISTORICAL SKETCH.—The origin of the Kingdom of Saxony may be referred to the division in 1485 of the possessions of the Duke of Saxony between the Albertine and Ernestine lines of the house. The former received the margraviate of Meissen, to which the present kingdom corresponds. In 1547 this branch received the electorate, which was then transferred from the other branch, and in 1806 the title of king was conferred on the Elector of Saxony by Napoleon. The kingdom was then more than twice as large as at present, and was reduced to its present limits in the Treaty of Vienna, when it was obliged to cede the northern portion of its territory to Prussia.

BAVARIA.

Bavaria (German, *Baiern*) is a kingdom in the south of Germany, composed of two isolated portions of unequal size, the smaller portion, the Pfalz or Palatinate, being separated from the larger by Würtemberg, Baden, and the Grand-duchy of Hesse.

POLITICAL DIVISIONS.—The following table gives the area and population of the circles or provinces into which Bavaria is divided:—

Circles.	Area, sq. m.	Population, 1875.
Upper Bavaria (German, Oberbaiern), ...	6,582	894,160
Lower Bavaria (Niederbaiern), ...	4,158	622,357
Palatinate of the Rhine (Die Pfalz, Rheinpfalz), ...	2,292	641,254
Upper Palatinate (Oberpfalz), ...	3,732	503,761
Upper Franconia (Oberfranken), ...	2,702	554,935
Middle Franconia (Mittelfranken), ...	2,918	607,084
Lower Franconia (Niederfranken) and Aschaffenburg, ...	3,243	596,929
Swabia (Schwaben) and Neuburg, ...	3,665	601,910
Total, ...	29,292	5,022,390

PHYSICAL FEATURES.—Bavaria is a hilly rather than a mountainous country. A large portion, more especially south of the Danube, is a plateau country of considerable elevation, and indeed the whole of the main portion of the kingdom may be described as an upland valley, averaging about 1600 feet above the sea-level, intersected by numerous large streams and ridges of low hills. On all sides it is surrounded by hills of a greater or less altitude, either quite upon the frontier or only at small distances from it. The whole south frontier is formed by a branch of the Noric Alps, offsets from which project far into the south plateau of Bavaria. Besides numerous peaks which this range contains, varying from 4000 to 8000 feet high, there are several which exceed the latter height, the highest being the Zugspitze, 9750 feet. The Bohemian frontier is formed

by the Böhmerwald Mountains running south-east to north-west, attaining in the Arber the height of 4825 feet, and lowering down at the valley of the Eger. Crossing the Eger we meet with the Fichtelgebirge, presenting the Schneeberg, 3480 feet high, and the Ochsenkopf, 3378 feet. Along the northern frontier run hills of moderate elevation, under various names, Frankenwald, Rhöngebirge, &c. The most noteworthy of the interior ranges is the Franconian Jura; a low limestone range, containing numerous remarkable stalactitic caves in the north-east, running in a south-western direction from the Fichtelgebirge. The Pfalz or Palatinate is traversed by the north extremity of the Vosges, the highest peak in this locality being the Königsstuhl, 1725 feet high.

RIVERS AND LAKES.—Bavaria belongs wholly to the basins of the Danube and the Rhine, with exception of a very small portion in the north-eastern corner, which through the Eger appertains to the basin of the Elbe. The river Danube intersects the main portion of the kingdom west to east nearly in the centre, while the drainage belonging to the Rhine basin is conveyed to the river Rhine through the Main, which traverses nearly the whole of the north part of this portion of the kingdom from east to west, and is navigable for steam-vessels from Bamberg to the Rhine.

The lakes of Bavaria, many of which present exceedingly picturesque scenery, all lie in the south. The most remarkable are Lake Ammer, about 10 miles long by 2½ broad, Lake Würm or Starnberg, about 12 miles long by 3 broad, and Lake Chiem, 9 miles long by 9 to 4 broad, all more than 1600 feet above the sea.

CLIMATE.—If we except the valley of the Rhine, and the valley of the Main in Lower Franconia, Bavaria, even including the Palatinate, in comparison with other German states, is a cold country. The average temperature of the year is about 47° Fahrenheit, the same as the east coast of Scotland. Winter, 30°; spring, 47°; summer, 63°; and autumn, 47°.

PRODUCTIONS, &c.—Bavaria is one of the most favoured countries in Germany in respect of the fruitfulness of its soil, due no doubt in a considerable degree to the undulating nature of the country, to the numerous streams by which it is watered, and to being nearly wholly composed of Jura limestone. In the plains and valleys the soil is capable of producing all kinds of crops, but not until lately were the natural advantages of the country turned to good account. Ignorance and idleness opposed a barrier to improvement, which it took the utmost efforts of an enlightened government, aided by the general spread of education, to remove. At length a spirit of agricultural enterprise pervades the kingdom, improved methods of cultivation have been introduced, and large tracts of waste land have been reclaimed and brought under the plough. The principal grain crops, in the order of their importance, are oats, rye, barley, spelt, wheat; the less important maize, buckwheat, and millet. All the ordinary green crops are also cultivated. Among other productions of the soil the chief are tobacco (especially in the Palatinate of the Rhine and Franconia), sugar-beet (in the same localities), hemp and flax (throughout the entire kingdom), the vine (also throughout the kingdom, but more particularly in the Rhine Palatinate and Lower Franconia), and hops (in certain districts scattered over all the

provinces). In the rearing of cattle and sheep the Bavarians have made great advances in recent years. Pigs are reared in great numbers in all parts of the country, and poultry and wild fowl are abundant. The **forests** of Bavaria, composed chiefly of fir and pine trees, cover a third of its entire surface, and yield a large revenue, much timber being annually exported, together with potashes, tar, turpentine, and other products peculiar to these wooded regions. The wolves with which the forests of Bavaria were at one time invested are nearly and the bears quite extinct. The principal **mineral products** are salt, coal, and iron, the first chiefly in the south-east, the second chiefly in Upper Bavaria and the Rhine Palatinate, and the last chiefly in the Rhine Palatinate and to a less extent in Lower Franconia. Black-lead is found in several places and pretty largely exported, especially to America, where it is used for making crucibles. Porcelain clay of the finest quality likewise abounds in some localities, the best being obtained in the district of Wunsiedel in the Upper Main. Solenhofen in Middle Franconia is famed for its lithographic stones. Of the mineral waters of Bavaria the most celebrated are those of Kissingen in Lower Franconia.

Munich, the Royal Palace.

MANUFACTURES.—Till a comparatively recent period the development of the manufactures of Bavaria was greatly hindered by the restrictions imposed by a system of guilds which was there in force, but these restrictions were entirely removed in 1868, and since then Bavarian manufactures have advanced with great rapidity. The principal articles of manufacture are textile fabrics (cotton, wool, silk, and mixed tissues), articles in metal, paper, glass, leather, earthenware. The hand-weaving of cotton and woollen goods is largely carried on in the *Voigtland* in the north-east. The making of articles in wood is an important industry in various places, and among the branches of this department may be singled out parquetry (carried on chiefly in Munich, Ratisbon, and Kaiserslautern), furniture (in Augsburg, Munich, &c.), and toys (chiefly in Nürnberg). The optical and mathematical instruments made at Munich, Nürnberg, Fürth, and elsewhere are among the best on the Continent. But the most important branch of manufacture in Bavaria is the brewing of beer—the universal

and favourite beverage of the country. There are upwards of 5000 brewing establishments in the kingdom, which have been calculated to supply on an average nearly fifty gallons a year to every individual of the population. The beer is not only consumed in immense quantities in the country, but is sent to all parts of Germany, and even as far as America and India.

GOVERNMENT, &c.—The Bavarian constitution was established in 1818, but considerably modified in 1848–49. The legislature consists of two chambers, the lower of which is elective. The electors must be above twenty-five years of age, and must be rated to the amount of at least 20*s.* a-year. The period for which the chamber is elected is six years. More than half the Bavarian revenue is derived from state railways and domains, and among the other sources of revenue are a malt-tax, registration dues, licenses, taxes on land, buildings, and incomes, state mines, posts, and telegraphs. Less than a fifth of the revenue is required to meet the interest on the public debt, the greater part of which was contracted for the construction of railways.

CHIEF TOWNS.—Munich (in German *München;* population by census of 1st Dec. 1880, 228,000), the capital of Bavaria, is situated in the province of Upper Bavaria, and stands in one of the least fertile districts of the Bavarian plateau, on the banks of the Isar, which rushes through the town with all the character of a wild mountain torrent. It consists of an old and a new town, the former still the most animated part of the city, of which it occupies the centre, the latter consisting of spacious but almost empty streets, adorned by an unusual number of public buildings. Several of these are devoted to the preservation of treasures of art, in which Munich is richer than any other town in Germany, even than Dresden. Its Glyptotheca, a building in the Greek style containing valuable collections of Greek sculptures, its two Pinakothecæ, one containing 1300 old pictures of all schools of art, besides engravings, drawings, and antique vases, the other intended for modern pictures, and its numerous other collections are visited by lovers of art from all parts of the world. The university, founded in 1472 at Ingolstadt, was transferred to Landshut in 1800, and thence to Munich in 1826. Nürnberg (in 1880, 99,800), in Middle Franconia, the second town in Bavaria, is an old and celebrated imperial free city, and with its old fortifications, now girt round by gardens instead of ditches, and its old houses and other buildings in the interior, still preserves much of the general aspect presented by such cities at the close of the middle ages. It enjoyed the privileges of a free city from the year 1219, and reached the height of its prosperity in the fifteenth century. Augsburg (in 1880, above 60,000), in the province of Swabia and Neuburg, was formerly a place of even greater importance than Nürnberg, having been in the fifteenth and sixteenth centuries the most flourishing entrepot in the trade between Italy and the Levant and the north of Europe. It is as old as the time of the Romans, by whom it was called Augusta Vindelicorum. Würzburg (in 1880, above 50,000), in Lower Franconia, is the seat of a bishopric founded by Charles Martel in the eighth century, and of a university founded in 1402, and now largely attended chiefly in consequence of the high reputation of its medical faculty and the advantages afforded by the splendid

laboratories with which it is furnished. There remain to be noticed two cities of historical celebrity both of which have declined from their former eminence—Ratisbon or Regensburg in Lower Bavaria, and Spire (Speier) in the Palatinate of the Rhine. The former, situated on the right bank of the Rhine, though now containing only 32,000 inhabitants, was in the thirteenth century the principal entrepot of the Levantine trade, which was carried on by the Danube, and as such was the most populous and flourishing city of southern Germany. From 1663 to 1803 it was the seat of the Germanic diet. Its cathedral, dedicated to St. Peter, originally built between 1275 and 1648, but completely restored after 1838, is a masterpiece of Gothic architecture, its façade, wrought like a lace-veil, being particularly admired. The church of the convent of St. James, more than eight centuries old, possesses a fine Byzantine doorway. The latter town, Spire (14,000), is the ancient Augusta Nemetum, and possesses a cathedral built in the eleventh century, one of the largest and finest specimens of the Romanesque style of architecture, and also remarkable as containing the tombs of the emperors of the house of Franconia as well as several others of a later date. The cathedral, which has often suffered from the ravages of war, was completely restored by the King of Bavaria in 1856 and the following years.

Nürnberg, Church of St. Lorenz.

HISTORICAL SKETCH.—In ancient times the southern portion of Bavaria, then in the possession of the Celtic tribe of the Vindelici, formed part of the Roman province of Rhætia. It was afterwards settled by Teutonic tribes, and in 911 received a duke. In the Peace of Westphalia in 1648 the duke had the dignity and title of elector granted him, and in 1777 the territories then possessed by the elector fell by inheritance to the elector of the Rhine Palatinate. In the Peace of Pressburg in 1805 Bavaria having supported Napoleon received from him a large accession of territory together with the title of king, and in the Congress of Vienna in 1814–15 the dominions of the King of Bavaria were fixed within their present boundaries. Bavaria then had to cede a large part of its newly acquired territory to Austria, and received only a portion of the Rhine Palatinate, together with Würzburg and Aschaffenburg.

WÜRTEMBERG.

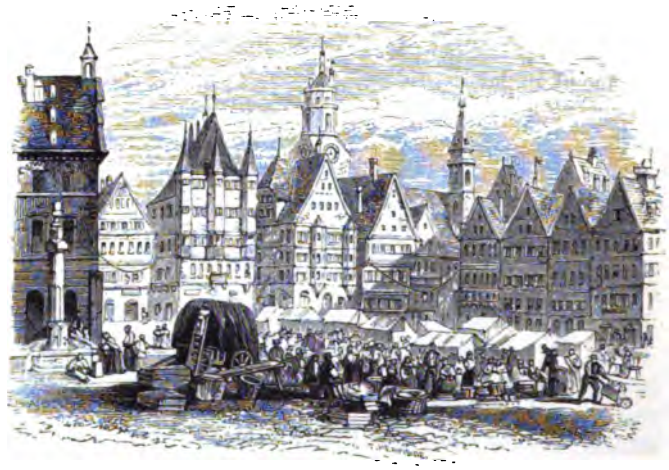
Würtemberg is a kingdom of the German Empire, lying between Bavaria and the Grand-duchy of Baden. It is divided into four provinces or circles, of which the names, area, and population are given in the following table:—

Circles.	Area in Eng. sq. m.	Pop. 1875.
Neckar, ...	1284	587,834
Schwarzwald (Black Forest), ...	1984	454,937
Danube, ...	2419	448,031
Jaxt, ...	1844	390,703
Total, ...	7531	1,881,505

Except a few level tracts in the south the surface is throughout hilly and even mountainous. In the west the Schwarzwald, or Black Forest, forms part of the boundary with some of its loftiest ridges, and sends ramifications far into the interior. In Würtemberg, however, it is neither so high nor so steep as on the side of Baden, and its ridges are generally clothed with forests. Much steeper and more inhospitable are the mountains of the centre and the east, where the Alb or Rauhe Alp, forming part of the Franconian Jura, covers an extensive tract. This mountain mass when at its greatest height spreads out into an elevated desolate plateau. Towards the north its descent is rapid and abrupt, but towards the south it slopes down very gradually. Beyond the north slope other heights begin to rise, and link at last with outliers of the Odenwald. The drainage is shared between the basins of the Danube and the Rhine, and hence part of the great water-shed of the European continent is found in Würtemberg, being formed by the Alb and its plateau. The Lake of Constance, of which only a small portion belongs to Würtemberg, is the only lake worthy of the name. Notwithstanding the general ruggedness and elevation of the surface, the climate is decidedly temperate, though it necessarily varies much with locality.

In respect of vegetation Würtemberg has been divided into three regions—from the lowest level up to 1000 feet, from 1000 feet to 2000 feet, and from 2000 feet upwards. All of these grow grain, but the characteristic products are—in the third, forest-timber; in the second, the hardier fruits; and in the first, the more delicate fruits and the vine. This last region, the soil of which is of great fertility, is almost confined to the northern circles of the Jaxt and the Neckar, where the fig and melon ripen perfectly in the open air, and the vine, cultivated on an extensive scale, produces several first-class wines. In the second region, the largest of the three, the soil is seldom alluvial, but generally contains a considerable proportion of vegetable mould and disintegrated trap and limestone. Occasionally, however, it degenerates into clays, sands, and gravels, which yield profitable returns only when managed with industry and skill. In neither of these qualities are the inhabitants of Würtemberg deficient, and their agriculture, even under untoward circumstances, equals that of any other part of Germany. The principal grain crops of the country generally, in the order of their importance, are spelt, oats, barley, mixed corn, rye, wheat; those of less consequence, beans, maize,

buckwheat, millet. In ordinary seasons the grain produced leaves a considerable surplus for export. Hops, tobacco, sugar-beet, flax and hemp, as well as the ordinary green crops, are also grown. Artificial meadows yield luxuriant crops of hay and vetches for feeding or dairy purposes, and considerable attention is also paid to the rearing of stock. The third region, though under partial cultivation, derives its chief value from its natural pastures and **forests**, the latter, both of pine and hardwood, climbing the loftiest ridges of the Schwarzwald, and giving valuable returns, not only in their timber, but the herds of swine which they feed. In bleak moorish districts bees are often reared on an extensive scale. Of **minerals**, by far the most valuable is salt, obtained chiefly from springs. The other minerals deserving of notice are iron-ore and alum. Large quantities of mineral oil and also of gases used for heating are obtained from the bituminous slates on the north slopes of the Rauhe Alp. **Manufactures** have made considerable progress in recent years. They consist chiefly of cotton, woollen, linen, and silk goods, gloves, paper (a very old industry in this region, in one of the towns belonging to which, namely Ravensburg, the first paper work in Germany is said to have been established), wooden clocks, toys, furniture, articles in gold and silver, musical instruments, especially pianos, and chemical products.



The Market Place, Stuttgart.

The constitution, dating from 1819, lodges the executive power in the sovereign; the legislative, jointly in the sovereign and a parliament, composed of an upper and a lower chamber. See under GERMAN EMPIRE.

The capital of Würtemberg and the only town of importance in the kingdom is Stuttgart (at census of 1880, 117,000). It stands only a short distance from the river Neckar, and is one of the most delightful residences in Germany, being charmingly situated at the bottom of a valley the slopes of which are completely covered with woods and vineyards, the latter yielding vintages so abundant as to have given rise to the saying that if the grapes were not gathered the town would be drowned in wine. It is not a very old town, and supplanted the adjoining town of Cannstadt as the capital only in 1320. Its population has increased nearly sixfold within the last century. The manufactures of the place are varied and

considerable, but what distinguishes it from other towns in an industrial point of view is the fact that it is the principal seat of the book-trade in South-west Germany. The origin of the town is indicated by its name, which signifies a stud. The only university town of Würtemberg is Tübingen (10,000), about twenty miles south-west of Stuttgart. The university, founded in 1477, is richly endowed and possesses both a Protestant and a Roman Catholic faculty of theology, the former of which acquired great celebrity in the past generation through the labours of the very advanced school of theologians by which it was represented.

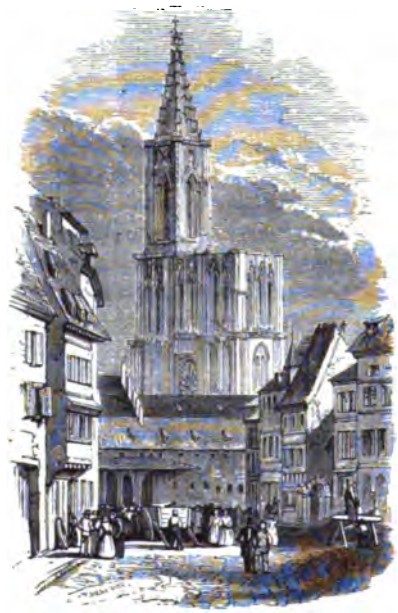
In ancient times the southern part of Würtemberg formed part of the Roman province of Rhætia. Afterwards Würtemberg became a German duchy. The title of king conferred by Napoleon was assumed by the ruler of Würtemberg on the 1st of January, 1806, and in the same year his territory was extended to its present limits.

IMPERIAL TERRITORY OF ALSACE-LORRAINE.

This territory, called in German *Elsass-Lothringen*, occupies the extreme south-west of Germany, west of Baden and south of the Rhine Palatinate. It is divided into three provinces or governments, those of Upper and Lower Alsace (*Ober-* and *Nieder-Elsass*) in the east, and Lorraine (*Lothringen*) in the north-west. The total area is 5602 square miles, and the population in 1875, 1,531,804.

The surface of Alsace-Lorraine may be divided into three regions, a mountainous, a hilly, and a level region. The first is formed by the Vosges (German, *Wasgen*), in the west of Alsace, culminating in the Sulzer Belchen, which reaches the height of 4700 feet. The second part of its name, corresponding to the French *Ballon*, is applied to it in consequence of its rounded summit, and is common to many of the heights of the Vosges. The southern part of Alsace contains also some of the last spurs of the Jura, with two summits nearly 2700 feet high. The hilly region spreads over the whole of the circle of Lorraine, and the plain occupies the portion of Alsace north of Mülhausen between the Rhine and the Vosges, forming in this range numerous pretty valleys, in some of which the sides of the valley rise with extraordinary abruptness. The southern Vosges consist chiefly of granite, gneiss, Devonian rocks, red sandstone, porphyry, &c., and present a remarkable correspondence in appearance and structure with the Schwarzwald on the other side of the Rhine. The northern Vosges are composed of new red sandstone, and the plateau of Lorraine of the same rock, together with muschelkalk, keuper, and Jurassic strata. The territory belongs entirely to the basin of the Rhine, which separates Alsace from Baden on the east and receives the drainage of Lorraine through the Moselle or Mosel. The principal occupation of the people is agriculture, for which the soil of Alsace especially is admirably adapted, the total value per acre of the products of the soil (including forests) in this part of the territory being higher than in any

other part of Germany, more than 17 per cent higher than in Saxony, where the proportionate yield is next greatest. Most of the communes have two different kinds of property in land—private property and communal property, the latter being usually farmed out and the rents expended for the behoof of the commune. Large estates are almost unknown. The principal crops are wheat, barley, oats, maize, oil-seeds, flax, hemp, hops, tobacco, sugar-beet, and wine; and for the cultivation of the last two products Alsace-Lorraine holds a leading place among the states and provinces of Germany. The cultivation of tobacco has declined since the abolition of the privilege enjoyed by the territory on its annexation to the empire. The territory is tolerably well wooded especially in the mountainous region, but is not so rich in this respect as the other states of South Germany. About half of the entire forest land belongs to the communes, and the remainder is about equally divided between the state and private individuals. The **mineral wealth** of the territory is great, the principal minerals being iron ores, coal (both chiefly in Lorraine), salt, and building-stones. The **manufacturing industry** is also important, and is especially employed in the production of cotton, silk, wool, and other yarns and tissues, in the smelting of metals and construction of machinery, and in the manufacture of paper, leather, &c.



Street in Strassburg, with Towers of the Cathedral.

The government of this territory is on a different footing from all other parts of Germany, and is regulated by the imperial laws of the 2d of May, 1877, and 4th July, 1879. According to these laws the emperor exercises in Alsace-Lorraine the authority belonging to the sovereigns in the other parts of Germany, and may depute this authority to a viceroy resident in Strassburg. Legislative enactments applying to this territory proceed from the emperor with the consent of the imperial Bundesrath, but require also the sanction of a local committee of 58 members. Of this committee 34 members are elected by the councils of the three governments or provinces (13 by Lower Alsace, 10 by Upper Alsace, 11 by Lorraine), 20 by the councils of the twenty circles into which the territory is divided, and one each by the corporations of the towns of Strassburg, Mülhausen, Metz, and Kolmar. The election is in every case indirect.

The capital of the territory is Strassburg (by the census of December 1, 1880, 95,000), a fortress of the first rank traversed by the Ill, a tributary of the Rhine, and in the immediate neighbourhood of that river itself. The great ornament of

this city is its cathedral, one of the masterpieces of Gothic architecture, designed by Erwin of Steinbach and erected in the thirteenth and fourteenth centuries. The University of Strassburg, founded in 1621, but suppressed by the French at the beginning of the present century, was re-established in 1872 after the city had once again come into the possession of Germany. Strassburg is a town of great antiquity, having existed in the time of the Romans under the name of Argentoratum. In 1254 it became an imperial free city, and it remained a German town till 1681, when it was seized by the French without warning in the midst of peace. It suffered greatly by bombardment during the Franco-German war in 1870, but has since been restored. The fortifications have been greatly strengthened since the town was recovered by Germany with the rest of Alsace. Mülhausen (French, *Mulhouse;* at census of 1880 above 60,000) is the next town in importance in Alsace, and a great centre of manufacturing industry. This town came into French hands only in 1798, when it voluntarily gave itself up to France after remaining for three centuries the ally of the Swiss. Metz (at census of 1880 above 50,000) is the chief town in German Lorraine, and occupies a commanding situation near the confluence of the Seille and Moselle. Like Strassburg it is a fortress of the first rank, and possesses large arsenals and military establishments. It also contains a fine Gothic cathedral erected between the fourteenth and sixteenth centuries. Metz was already a place of considerable importance under the Romans, by whom it was called Divodurum Mediomatricorum. Under the descendants of Clovis it became the capital of the Kingdom of Austrasia, and in the ninth century of that of Lorraine. On the decline of the latter short-lived kingdom it passed to the emperors of Germany, from whom it very early received the privileges of a free city. It was occupied by the French in 1552.

In the time of the Romans Alsace belonged in the south to the province of Maxima Sequanorum, and in the north to that of Germania Prima. In the fifth century it was occupied by the German tribe of the Alemanni, and under the early German emperors formed a separate duchy. From the twelfth century the imperial authority in the district was exercised by counts and imperial prefects (*Reichsvögte*). The latter dignity belonged to the family of Hapsburg, which also possessed the rights of counts in Upper Alsace, or the Sundgau as it was then called. As time advanced the authority of the counts declined, but that of the imperial prefects increased, so that the Hapsburg family exercised a very important influence over the numerous small lordships, ecclesiastical dominions, and free-towns into which the territory was divided from the thirteenth century. In 1648, after the Thirty Years' War, Alsace was ceded to France, with a reservation of the rights of certain towns, compensation being made in money to the house of Hapsburg. The province of Lorraine belonged mainly to the Duchy of Lorraine, which was annexed by France in 1766, but is partly composed of territories that did not fall to France till a later date. The whole territory was ceded by France to Germany after the Franco-German war in the Peace of Frankfort, May 21, 1871.

GERMAN GRAND-DUCHIES.

BADEN is a grand-duchy in the south-west of Germany, to the west of Würtemberg. It is divided into four districts, the names, area, and population of which are as follows:—

Districts.	Area in Eng. sq. m.	Pop. 1875.
Constance, ...	1610	276,452
Freiburg, ...	1830	441,493
Karlsruhe, ...	993	387,673
Mannheim, ...	1391	401,561
Total, ...	5824	1,507,179

Baden is decidedly mountainous, being traversed to a considerable extent by the lofty plateau of the Schwarzwald or Black Forest, which attains its highest point in the Feldberg (4904 feet). The nucleus of this plateau consists of gneiss and granite. In the north it sinks down towards the Odenwald, which is, however, of different geological structure, being composed for the most part of red sandstone. In the extreme west of Baden, about lat. 48° N., there is a small group called the Kaiserstuhl, evidently of volcanic formation. The whole of Baden, except a small portion in the south-east in which the Danube takes its rise, belongs to the basin of the Rhine. Lakes, including a considerable part of the Lake of Constance and the whole of its two western arms, the Uberlingersee and Zellersee, are numerous. The climate of Baden varies much with the surface. The hilly parts, especially on the east, where they lie exposed to the blasts from the Swabian Alps, and also the Odenwald, are cold and have a long winter, while the valley of the Rhine in Baden enjoys the finest climate of Germany. The principal minerals worked are coal, salt, iron, zinc, and nickel. The number of mineral springs is remarkably great, and of these not a few are of great celebrity. The vegetation throughout Baden is peculiarly rich. The usual crops are the same as in Würtemberg, and its production of tobacco, hemp and flax, wine, and sugar-beet is proportionately greater than in the latter state. Several of the wines, both white and red, produced in Baden rank in the first class. Baden has long been famous for its fruits also, including besides apples, pears, chestnuts, cherries, and plums in almost unlimited abundance, walnuts, medlars, and almonds. Magnificent forests which line many of the valleys and clothe the mountain sides, furnish supplies both of fuel and excellent timber which are almost inexhaustible. The manufactures of the grand-duchy have increased enormously in importance since its union with the Zollverein in 1835, the industrial population now amounting to about one-third of the whole. Among those carried on to an unusual extent may be singled out the making of jewelry (especially at Pforzheim), the making of wooden clocks, confined chiefly to the districts of the Black Forest, and connected with the latter the making of musical boxes and other musical toys, in which extraordinary skill and ingenuity are displayed. The legislative assembly of Baden consists of two chambers.

(See under GERMANY.) The revenue is mainly derived from taxes on land and incomes, and the produce of crown lands, forests, and mines.

The capital of Baden, Karlsruhe (43,000), has grown up within the last two centuries round a hunting castle erected in the midst of a forest about 5 miles distant from the Rhine. It is surpassed in population by Mannheim (47,000), at the confluence of the Rhine and Neckar, a position that has made it the point of concentration of the commerce between Holland, the valley of the Neckar, that of the Upper Rhine, and Switzerland. Freiburg-im-Breisgau (31,000), near the south of the grand-duchy, Baden (11,000) in the middle, and Heidelberg (22,000) in the north, are all equally celebrated for the beauty of their situation, and the first also for its cathedral, erected between the twelfth and the sixteenth century, the next for warm mineral springs which were known and used in the time of the Romans, and the last for its university, founded in 1386, and hence the oldest in the present German Empire.

Baden.

In the time of the Roman Empire southern Baden, like southern Würtemberg and Bavaria, belonged to the Roman province of Rhætia. Under the old German Empire Baden was a margraviate, which in 1533 was divided into Baden-Baden and Baden-Durlach, but reunited in 1771. The title of grand-duke was conferred by Napoleon in 1806, and in the same year Baden was extended to its present limits.

HESSE (in German *Hessen*, formerly called Hesse-Darmstadt to distinguish it from other two independent states, Hesse-Cassel and Hesse-Homburg, now incorporated with Prussia) is composed of two separate main portions besides eleven smaller segments. Of the two main portions one (forming the provinces of Rheinhessen on the left and Starkenburg on the right bank of the Rhine) lies immediately to the north of Baden, the other is entirely inclosed by the Prussian province of Hesse-Nassau. Two of the small segments lie south of the southern portion, the remainder between the two larger portions. The area of the whole grand-duchy is 2965 square miles, and the population in 1875, 884,218.

Upper Hesse is generally mountainous, being covered in the south-west by the Taunus, and in the east by the Vogelsberg, culminating in the Taufstein (2568 feet), the highest point in the land. The province of Starkenburg is occupied in the south-east by a portion of the Odenwald; that of Rheinhessen in the south-west by a northern ramification of the Vosges. The whole surface of the grand-duchy belongs to the basin of the Rhine, with exception of a small portion in the north, drained by the Eder and Fulda, affluents of the Weser. The climate is greatly diversified, being cold and bleak in the mountainous districts, and mild and pleasant in the valleys of the Rhine and the Main. Here, however, some unhealthy districts are found among the extensive marshes

Heidelberg.

which the Rhine has formed. The soil, particularly in the provinces of Starkenburg and Rheinhessen, is remarkably fertile, and corn of all kinds is raised in quantities sufficient to leave a large surplus for export. Hemp, flax, potatoes, and rape-seed are also extensively grown, and in particular districts tobacco and hops. The vine forms a most important object of culture, and fruit is very abundant. The most important live-stock are cattle, which form a considerable export. The right bank of the Rhine is densely, but the left bank poorly wooded. The minerals include iron, lignite, manganese, and salt. They are chiefly confined to Upper Hesse. The manufactures are important, and are making steady progress, the grand-duchy excelling particularly in the production of lacquered and dyed leathers. The constitution dates from 1820, but was somewhat modified in 1848 and 1856. See under GERMANY.

The capital of the grand-duchy is Darmstadt (44,000), situated in a sandy plain. More populous, more celebrated, and much more ancient is the city of

Mainz or Mayence (56,000), the Moguntiacum of the Romans, and in the time of the old empire the seat of one of the three ecclesiastical electors. It is admirably situated on the Rhine, and when seen from that river presents with its numerous domes and towers a very imposing appearance. Of its domes the most majestic is that which crowns its large cathedral, which dates in its present form from the fourteenth century. Not the least claim to celebrity which this town possesses arises from the fact that the first printing-press was set up here by Gutenberg and his associates Fust and Scheffer. Worms (17,000) is another ancient and historically celebrated city, and holds a prominent place in the Nibelungenlied as the capital of the Burgundians. In the time of the old empire it was the seat of several diets, the most important of which was that at which Luther defended himself before Charles V. in 1521.

Worms, the Cathedral.

The Grand-duchy of Hesse originated in the division of the Landgraviate of Hesse into those of Hesse-Cassel (now included in the Prussian province of Hesse-Nassau) and Hesse-Darmstadt in 1567. In 1806 the landgraviate was erected into a grand-duchy with an enlarged territory by Napoleon, but alterations were made in the territory by the Congress of Vienna. The grand-duchy was reduced to its present limits in 1866, when it had to cede to Prussia some districts in the north, besides Hesse-Homburg, which after being separated from it since 1596 had been reunited to it in the beginning of the year in which it was ceded.

MECKLENBURG is bounded on the north by the Baltic, on all other sides by Prussia, and is composed of two grand-duchies, which are, however, intimately associated, politically as well as geographically. The Grand-duchy of **Mecklenburg-Schwerin** is by far the larger of the two, having an area of 5136 square miles, and a population on the 1st December, 1875, of 553,785; that of **Mecklenburg-Strelitz**, lying to the south-east of the other division, has an area of 1131 square miles, and a population in 1875 of 95,673.

The surface is generally flat, the only exception being a ridge of low hills which forms the watershed between the basins of the Elbe and the Baltic. The sea-coast is low, and much indented by several bays, of which the largest is that

of Wismar. Lakes are very numerous, and, indeed, form one of the characteristic features of the country. Their total area is about 300 square miles. The climate is mild, and the soil is generally fertile, and produces corn in such abundance as to leave a large surplus for export. The principal grain crop is rye, but the principal grain export wheat; the grain crops next in importance are barley, oats, and buckwheat. Maize also is grown here and there. The rearing of stock attracts considerable attention, and the breeds have in recent times been much improved. Both horses (which are among the strongest in Germany) and cattle are largely exported; and wool has become one of the most important sources of revenue. Woods, once extensive, have been very much mismanaged, and a serious want of timber begins to be felt. Two-thirds in both divisions belong to the state. Amber is found on the Baltic shores, in Lake Muritz and elsewhere, but otherwise the minerals are of no consequence; and manufactures have not made much progress, though the distillation of spirits is carried on to a very great extent. The trade is extensive: chief port, Wismar. In both the Mecklenburg states the government is a limited monarchy. Each duchy has a separate legislative body, but the two meet together every second year, and have power to make common laws and impose common taxes for the whole of Mecklenburg.

The town of Schwerin (28,000), the capital of the larger of the two grand-duchies, is charmingly situated on the western shore of a large lake amidst a cluster of smaller lakes overlooked by wooded heights. It is the most ancient town in the state, and possesses an old cathedral. The grand-ducal castle on an islet in the lake occupies the site of an old Wendish fort, reconstructed in 1629 by Wallenstein, to whom Mecklenburg then belonged. Neu-Strelitz, the capital of the other grand-duchy, is a place of only 9000 inhabitants.

Occupied at an early period by Slavonic tribes, Mecklenburg is the only state in Europe that still has a reigning family of Slavonic origin. At the Peace of Westphalia (1648) the duchies existed as a single state in their present extent, except that Wismar was then ceded to Sweden, with which power it remained till 1803. The division of the state between two lines of one house took place in 1701, and the title of grand-duke was assumed by the rulers of both divisions in 1815, and sanctioned by the Congress of Vienna.

OLDENBURG as a grand-duchy is composed of three distinct parts, the Duchy of Oldenburg or Oldenburg proper, on the North Sea, with an area of 2076 square miles; the Principality of Lübeck, in Holstein, with an area of 200 square miles; and Birkenfeld, in the south of Rhenish Prussia, with an area of 194 square miles; thus making the whole area 2470 square miles. The population of Oldenburg proper in 1875 was 248,136; of the Principality of Lübeck, 34,085; of Birkenfeld, 37,093; of the whole grand-duchy, 319,314.

Oldenburg proper is flat throughout, excepting in the southern extremity, where some low hills appear. Storms often blow from the sea; and frequent fogs produce a cold, damp air, which occasionally robs even summer of its proper warmth. The surface in respect to soil is divided into marshy and sandy land. The former has in many instances been recovered from the sea, and is still pro-

tected from it by means of dikes similar to those erected in Holland and Holstein. It consists generally of a heavy alluvium, capable when properly laid dry of yielding heavy crops of wheat, beans, and hay. The sandy land is very light and of little fertility, and not unfrequently is left in a state of nature, forming extensive tracts of barren heath. A considerable part of the sandy districts was once covered with wood. Much of it has disappeared, but there are still several extensive forests. Agriculture, employed in raising not only corn (wheat, rye, barley, oats, buckwheat) and potatoes, but rape, hemp, flax, hops, chicory, and in the rearing of horses and cattle, is the principal source of subsistence. Since the admission of Oldenburg into the Zollverein in 1853, and still more since the liberation of industry from vexatious restrictions in 1861, manufactures and trade have made considerable progress. The principal branches of manufacture are cotton-spining, iron-founding, making of tobacco and cigars, cork-cutting, and joinery. The shipping is extensive. The inhabitants are generally a patient and industrious race, but habits of intoxication are very prevalent.

The Principality of Lubeck consists of undulating plains. In the north are several lakes, of which Lakes Keller, Uklei, and Eutin are situated in the midst of beautiful scenery. **Birkenfeld** is a mountainous district. In the upper parts the climate is cold and rude, but in the small sheltered valleys mild and healthy. The agricultural products are dye-plants, flax, hemp. Grain is not grown in sufficient quantity to meet the consumption. Wood is abundant. The minerals include iron, copper, coal, and the commoner kinds of gems, especially agates, which last furnish the material for the chief industry of the principality, that of stone-cutting and polishing. So celebrated has it become in this respect that many stones are sent to it from other parts of Europe, where they are found in abundance, to be worked up there. The centre of this industry in Birkenfeld is the small town of Oberstein on the Nahe. Among the other industries are tanning and weaving. Mining (for iron) is carried on to a considerable extent, but the ironstone is mostly sent to other places to be smelted and wrought.

The constitution of the Grand-duchy of Oldenburg dates from February 18, 1849, but was revised by a decree of November 22, 1852. The diet is of one chamber, and has one member for every 6000 electors. The franchise belongs to all citizens paying taxes who have never been condemned for felony. See under GERMANY.

Oldenburg (19,000 including suburbs), situated on the Hunte in the centre of Oldenburg proper, is the capital and only town of any importance in the grand-duchy. The nucleus of the Grand-duchy of Oldenburg was formed in 1180 as a county directly under the empire. From 1667 to 1779 it was subject to Denmark, where a branch of the house of Oldenburg had reigned since 1448 (and still reigns). In 1779 it again received a ruler of its own in the person of the prince-bishop of Lübeck. The bishopric of Lübeck was definitively united to Oldenburg as a principality in 1803, and in 1815 Birkenfeld and some parts of Hanover were added to the dominions of Oldenburg, and the title of grand-duke conferred on their ruler. In 1866 the Principality of Lübeck, formerly in two segments, was made one through Prussia's ceding the intervening territory.

SAXE-WEIMAR, or SAXE-WEIMAR-EISENACH (German, *Sachsen-Weimar-Eisenach*), is a grand-duchy of central Germany, one of the Thuringian States. (See next section.) It consists of three larger portions: Weimar, lying to the south of Prussian Saxony; Neustadt, lying to the south-east and separated by Saxe-Altenburg; and Eisenach, to the east of the Prussian province of Hesse-Nassau; and several smaller parcels, as Ilmenau, Allstädt, Oldisleben, &c. The area of the whole grand-duchy is 1425 square miles, and the population in 1875, 292,933.

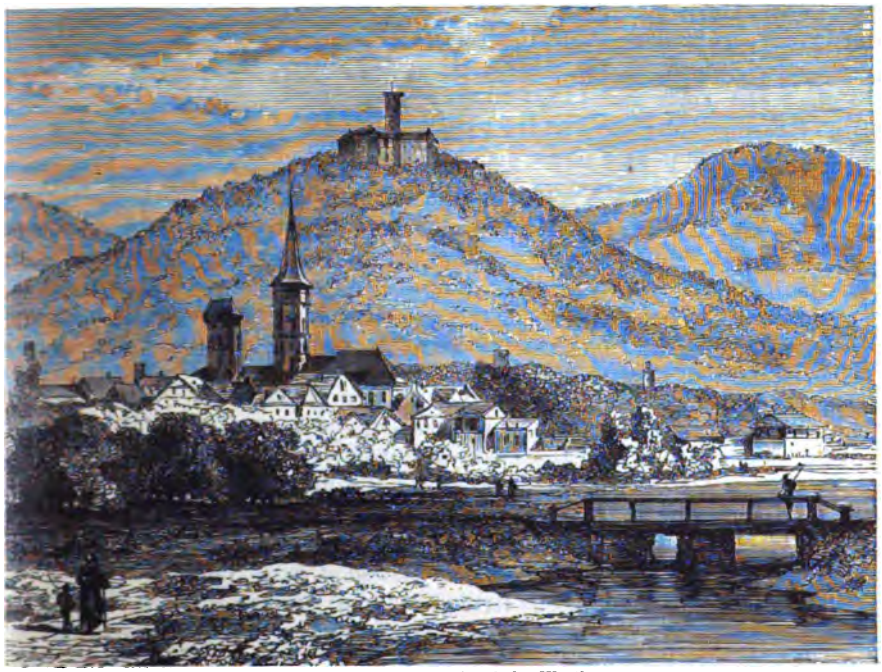
The grand-duchy belongs wholly to the basins of the Elbe and the Weser, the former draining Weimar by the Saale, and the latter draining Eisenach by the Werra. The lakes are individually of small extent, but numerous. The Principality of Weimar is the most fertile part of the duchy, and in good years raises corn (rye, oats, barley, wheat) sufficient to satisfy the home consumption and leave a small surplus for export. In the valley of the Saale much hemp also is grown, and among other products are flax, tobacco, and hops. In all parts of the grand-duchy there is a large yield of fruit. Eisenach is the district least adapted for agriculture, but raises considerable quantities of oats and potatoes. There are extensive forests of beech, pine, and fir, half of which belong to the grand-ducal domains. The principal minerals worked are iron, coal, salt, and gypsum. Manufactures have made most progress in Eisenach, where woollen, cotton, and linen tissues, ribbons, and carpets, &c., are made. The hosiery of Apolda in Weimar enjoys a European reputation. There is a university of considerable repute at Jena, where it was founded in 1547. The government, as fixed by the charter of 1816, slightly modified by the law of 1849, is constitutional.

There are two towns of note in the Grand-duchy of Saxe-Weimar, the capital, Weimar (18,000), and Eisenach (16,000). The former, though a small town, hardly yields in celebrity to any city in the empire, a circumstance due to the fact that with it are associated all the greatest names of the golden age of German literature. Goethe and Schiller, Herder and Wieland, all lived here for a longer or shorter period; Goethe during almost the whole of his manhood, while Schiller was for several years professor in the neighbouring University of Jena. The grand-ducal residence, after being destroyed by fire in 1774, was rebuilt under the direction of Goethe himself, and among its other rooms there are four dedicated to the four leaders of literature above-mentioned and adorned with frescoes illustrating their works. Eisenach is a town of sufficient antiquity to be mentioned in the Nibelungenlied, and its castle of Wartburg, one of the most curious in Germany in respect of its architecture, figures prominently in German history, and is above all famous as the place where Luther found shelter in 1521–22, and where he performed a large part of his translation of the Bible into German.

The founder of the line of the grand-dukes of Saxony, as well as of those of the dukes of Saxe-Coburg-Gotha, Saxe-Altenburg, and Saxe-Meiningen, was John of Weimar, a scion of the Ernestine branch of the Saxon line, who died in 1605. He left eight sons, and his possessions were ultimately, in 1644, divided between two of these, William, the founder of the house of Saxe-Weimar, and Ernest the

Pious, the ancestor of the other three houses. The possessions of Saxe-Weimar were again divided in 1672 on the death of William, but reunited in 1741. In 1815 they were increased to their present extent, and at the same time the title of grand-duke was conferred.

The seven sons of Ernest the Pious founded in 1680 and 1681 seven ducal families,—Gotha, Coburg, Meiningen, Römhild, Eisenberg, Eisfeld (afterwards Hildburghausen), and Saalfeld. Between 1699 and 1710 those of Coburg, Eisenberg, and Römhild became extinct, and after a long contest about the succession to these territories an imperial decree distributed the disputed



Eisenach, with the Castle of the Wartburg.

territories among the four surviving lines in 1735. These lines now bore the titles of Gotha, Meiningen, Hildburghausen, and Coburg-Saalfeld. In 1825 the line of Gotha became extinct, and in 1826 a new division was made, according to which the Duke of Hildburghausen received Saxe-Altenburg; the Duke of Coburg-Saalfeld ceded Saalfeld and some other territories and received the Duchy of Gotha with the title of Duke of Saxe-Coburg-Gotha; and the Duke of Meiningen received Hildburghausen, Saalfeld, and some smaller territories.

THURINGIAN STATES.

This name is given to the states which lie almost entirely within the area inclosed by the kingdoms of Saxony and Bavaria and the Prussian provinces of Hesse-Nassau and Saxony, and traversed in the west from north-west to south-east by a low range of mountains called the Thuringian Forest (*Thüringerwald*). They consist of the Grand-duchy of Saxe-Weimar, the duchies of Saxe-Meiningen, Saxe-Coburg-Gotha, and Saxe-Altenburg, and the principalities of Schwarzburg and Reuss, part of the former principalities lying, however, outside of the region thus defined, which, on the other hand, includes several patches belonging to Prussia. The Thuringian range takes its origin in the neighbourhood of the town of Eisenach and traverses the western portion of the Grand-duchy of Saxe-Weimar, the main portion of Saxe-Meiningen, the adjoining Prussian patch, the south-western part of Saxe-Gotha, Upper Schwarzburg, and, by its continuations called the Franconian Forest and Saale Forest, also Upper Reuss. The principal summits of the Thuringian Forest are on the borders of Saxe-Gotha, where the Beerberg attains the height of 3075 feet, and the Schneekopf, Finsterberg, and others rise to nearly that height. Almost the whole range is characterized by beautiful well-wooded valleys, often with steep sides, and by numerous mineral springs and the watering-places to which they have given rise. The portions immediately beyond the Thuringian Forest proper belong to the Thuringian hill-country, which consists of gently undulating and mostly fertile land, and includes Lower Schwarzburg (within the Prussian province of Saxony), the greater part of both sections of Saxe-Coburg-Gotha, and the middle part of Saxe-Weimar. Of the remaining sections Lower Reuss and the western part of Saxe-Altenburg are mainly occupied by a separate group of mountains, and the eastern portion of Saxe-Altenburg with the south-eastern portion of Saxe-Weimar belong to the gently undulating and here mostly fertile Voigtland. Geologically, the Thuringian Forest is one of the most interesting regions of Germany, nearly all the groups of rocks from the oldest to the youngest being represented there. The narrow north-western extremity is chiefly composed of large masses of a kind of red sandstone to which the Germans give the name of *Rothliegendes*. Further to the south-east the range becomes broader and presents a great variety of eruptive rocks, mica schist, granite, porphyry, greenstone, &c., often mingled together in the most confused manner. Still further to the south-east porphyry becomes predominant, and this gradually gives place to the members of the graywacke formation. Permian limestone forms an almost uninterrupted fringe round the Thuringian Forest, separating the eruptive rocks of the mountain range from the hill country where new red sandstone, often overlaid by muschelkalk and keuper, predominates. The drainage of the Thuringian States belongs in the east to the basin of the Elbe, being conveyed to that river by the Saale and its tributaries; in the west to the basin of the Weser, which receives it by means of the Werra.

GERMAN DUCHIES.

BRUNSWICK (German, *Braunschweig*) is the most northerly of the German duchies, and is composed of three large and seven small segments lying between the Prussian provinces of Saxony, Hanover, and Westphalia. The main portion of the duchy belongs to the northern fringe of the mountainous region of Germany, and consists of an undulating expanse which gradually sinks down to the Lüneburg heath and has a very fruitful soil. The other two large segments in the west and south belong to the Harz region, the former, however, only to its base or outlying spurs, the latter to the mountainous tract of the Harz proper. The duchy belongs mainly to the basin of the Weser. The northern section has the mildest climate, the southern being very cold in winter, moist in spring and autumn, and very hot in summer. The principal crops are rye, barley, and potatoes. Excellent flax and hops are also grown, besides sugar-beet, linseed, tobacco, &c. A prominent feature in the garden cultivation of the duchy is the great amount of asparagus grown, especially in the neighbourhood of Brunswick and Wolfenbüttel. The forests and copses occupy nearly a third of the whole area, and are to the extent of about 70 per cent in the possession of the state, while about 23 per cent belongs to communes and corporations, and only about 7 per cent to private individuals. In the forests there are wild boars, deer, hares, heath-cocks, black-cocks, partridges, and hazel-grouse; but as no attempts are made to preserve the game, the quantity gradually decreases. Among predatory animals the fox is found everywhere; wild cats are less numerous, and fish otters are met with here and there, especially in the Harz. In these mountains mining for coal, lignite, bituminous rocks, iron, lead, copper, silver, and gold, besides iron pyrites and alum, is extensively carried on. The principal manufacturing industries are those connected with the mineral products just mentioned, but there are also manufactures of paper, papier-maché, soap, japanned wares, porcelain, &c. Brunswick (66,000), the capital, formerly a free town, is situated in the northern segment of the duchy, and is the principal seat of manufactures and

The Wool Market and St. Andrew's Church, Brunswick.

commerce. Its fairs, held twice a year, though now declining, were formerly of great importance. The Collegium Carolinum, founded in 1745, and intended as a medium between the schools and the universities, is now a polytechnical institution. Brunswick was first made a duchy and imperial fief by the Emperor Frederick II. in 1235. The reigning house subsequently divided into several branches, of which that of Brunswick-Wolfenbüttel is the only one that still survives. The area of the duchy is 1425 square miles, and its population in 1875, 327,493.

SAXE-MEININGEN (German, *Sachsen-Meiningen*) is one of the Thuringian States, and to the section under this heading the reader is referred for an account of its physical features. It consists of a main body in the south-west of that group of states, together with several minor portions isolated from it, and partly situated at a considerable distance, as Kamburg, Kranichfeld, and Lichtenhain. The higher districts, though well wooded, are very bleak, and altogether unfitted for agriculture; the best land is in the valleys of the Werra and Saale. The principal crops are rye, oats, wheat, barley, and potatoes. Hops, tobacco, flax, hemp, and even a little wine are grown in the more sheltered localities. The pastures are abundant, and rear considerable numbers of cattle, sheep, and horses. The forests occupy considerably more than a third of the whole surface, and about four-ninths of these belong to the state. The only minerals of importance are coal and slate; marble also is quarried in several places. Some pearls are found in a small stream called the Steinach. Game and fish are abundant. The inhabitants are very industrious, and when precluded by the nature of the soil from engaging in agriculture manage to earn a comfortable subsistence by the smelting of metals, and by manufactures, chiefly of woollen cloth, leather, and various ingenious articles in wood and pasteboard. The capital, Meiningen (10,000), occupies a narrow valley surrounded by wooded hills on the right bank of the Werra, and except for being the residence of the duke is a place of no importance. (For the history see GRAND-DUCHY OF SAXE-WEIMAR.) The total area of the duchy is 953 square miles, and the population in 1875, 194,494.

SAXE-COBURG-GOTHA (German, *Sachsen-Koburg-Gotha*) is also one of the Thuringian States, and is composed of two portions, the province of Gotha, the larger of the two, lying south of the Prussian province of Saxony and east of the Saxe-Weimar province of Eisenach. The chief occupations of the inhabitants, particularly in Coburg, are cattle-rearing and agriculture. Small proprietors are numerous, and their comforts are said to be on the increase. The principal products are the same as in Saxe-Meiningen. Hogs are fattened in the forests, which also yield timber, pitch, tar, charcoal, and potash. Forests occupy about two-fifths of the surface, and considerably more than three-fifths of these (chiefly in the province of Gotha) belong to the state domains. The manufacturing industry is considerable, the principal manufactures being combed woollen yarn, cotton fabrics, plush, carpets, earthenware and porcelain, leather, &c. The government,

according to the constitution of 3d May, 1852, is a constitutional monarchy. Each province has its own elective assembly, that of Coburg consisting of eleven and that of Gotha of nineteen members. Every second year they form a conjoint assembly of twenty-one members—seven from the Coburg diet and fourteen from that of Gotha. The united parliament, which meets alternately at Coburg and Gotha, the chief towns of the two provinces, decides questions affecting the whole state; while the separate assemblies settle their own local affairs. Gotha (23,000) is the largest town in the duchy, and is pleasantly situated on a canal of the Leine. It is alternately with Coburg the residence of the duke, who occupies the palace of Friedenstein crowning the height on which the town is situated. It contains a picture-gallery, a valuable cabinet of engravings, a Japanese and Chinese museum, and a library of 200,000 volumes with many Arabic, Turkish, Persian, and other MSS. Coburg (15,000) is a place of less importance. On an eminence overhanging the town is an ancient castle of the dukes of Coburg, unsuccessfully besieged by Wallenstein in the Thirty Years' War. The late Prince Consort was the younger brother of the present duke (Ernest II.), and Prince Alfred of Great Britain, duke of Edinburgh, is the heir-apparent to the duchy. (For the history see GRAND-DUCHY OF SAXE-WEIMAR.) Area of Coburg, 218 square miles; pop. in 1875, 54,507; area of Gotha, 542 square miles; pop. in 1875, 128,092; total pop., 182,599.

Gotha, from the North-east.

SAXE-ALTENBURG (German, *Sachsen-Altenburg*), like the last two duchies, is also one of the Thuringian States. It is made up of two nearly equal parts, an eastern lying west and south of the Kingdom of Saxony, and a western (Saal-Eisenberg) interposed between the two eastern sections of Saxe-Weimar, and separated from the eastern by the lordship of Gera, belonging to Reuss-Schleiz. The former is fertile and well cultivated, and by far the most populous, the latter rugged and sterile. Lignite and peat are procured in the eastern half of the duchy. Porcelain is manufactured to a considerable extent in the western. The population is to a large extent of Slavonic origin, and though the language is German the dress and customs of the people are still in a great measure

Slavonic. The peasants of Altenburg are reputed to be wealthier than in any other part of Germany. Among them it is the rule that the youngest son is heir to the landed property of his father, a custom which also exists under the name of Borough English in a few manors in England. When there are no sons, the estate falls, however, to the eldest, and not the youngest daughter. The government is a limited monarchy. The constitution bears date April 29, 1831, but was modified in 1853. Altenburg (22,000), the capital, is situated in the eastern division of the duchy about 26 miles south of Leipzig. It has various manufactures and carries on an active trade in woollen yarns, &c. The principal town in the western division is Eisenberg (5000). (For the history see GRAND-DUCHY OF SAXE-WEIMAR.) The area is 510 square miles; pop. in 1875, 145,844.

ANHALT is a duchy of North Germany, formed by the united duchies of Anhalt-Bernburg, Anhalt-Köthen, and Anhalt-Dessau. It lies partly in the plains of the Middle Elbe and partly in the valleys and uplands of the Lower Harz, and is almost entirely surrounded by Prussian Saxony, a small portion of its western frontier being touched by Brunswick, and a larger portion of the north-east being bounded by the Prussian province of Brandenburg. The soil throughout is fertile and well cultivated. All sorts of grain, wheat especially, are grown in abundance; sugar-beet is likewise an important crop, and flax, rape, tobacco, and hops are also cultivated. Garden fruit abounds, and in the valley of the Saale the vine is cultivated. The eastern part of the duchy has large deposits of salts of potash, which like those of Stassfurt in the Prussian province of Saxony, are of great value as fertilizing materials. The chief town, Dessau (20,000), lies in a beautiful valley on the left bank of the Mulde. The ducal palace, a fine building erected in 1748, contains a picture-gallery and library, in the latter of which are numerous MSS. of Luther. The dukes of Anhalt trace their origin to Bernard (1170–1212), son of Albert the Bear. In the course of time the family split up into numerous branches, and at the establishment of the Germanic Confederation in 1815 the territory was held by three dukes (Anhalt-Köthen, Anhalt-Bernburg, and Anhalt-Dessau), each with sovereign power in his own division, and a separate vote in the general assembly of the Confederation. In 1847, however, the Anhalt-Köthen line became extinct, and in 1863 the Anhalt-Bernburg family died out, leaving the Duke of Anhalt-Dessau sole heir to the three duchies. The area of the duchy is 906 square miles; pop. in 1875, 213,689.

GERMAN PRINCIPALITIES.

WALDECK is a principality of North Germany, composed of two portions, the larger, Waldeck proper, situated between the Prussian provinces of Westphalia and Hesse-Nassau; the smaller, the principality of Pyrmont, lying further north interposed between the Duchy of Brunswick and the Principality of Lippe.

Waldeck proper is throughout hilly, its greatest elevation reaching a height of 2775 feet. The drainage is carried to the Weser, the chief rivers being the Diemel and Eder. The soil is mostly of little fertility, and more than a third of the surface is occupied by woods. There are mineral springs in the south of Waldeck proper, but these are far less celebrated than the chalybeate waters of Pyrmont, the baths connected with which were in the second half of the last century those most frequented by the German aristocracy, and still attract large numbers of visitors. The independence of the principality is now limited to purely local affairs, a treaty concluded between the reigning prince and the King of Prussia in 1867 having made over the administration of the principality to Prussia. The residence of the prince is Arolsen, which has 2500 inhabitants, and has no other distinction than that of being the smallest capital of an independent state in Germany, and the smallest in Europe except Cettinye, the capital of Montenegro. Waldeck was a German county as early as the first half of the eleventh century. In 1682 the counts were raised to the dignity of princes. After being separated from Waldeck in 1494 Pyrmont was reunited to the other principality in 1631. The area of the principality is 433 square miles; population in 1875, 54,743.

LIPPE, or less correctly LIPPE-DETMOLD, also belongs to North Germany, being situated between the Prussian provinces of Westphalia and Hanover. It lies on the Teutoburgerwald, and is covered almost throughout by mountains and hills, which divide it into three small basins, belonging respectively to the Weser, Ems, and Rhine. In the south-west there are several lakes. Some parts of the surface are waste, or fit only for pasture, on which considerable numbers of cattle are reared; but others are fertile. The mountains are generally well wooded, and there are fine forests of oak and beech. Large numbers of the inhabitants leave the principality every year to work as bricklayers in other parts of Germany and even in distant foreign countries, returning with their earnings in the autumn. Since 1836 the government has been constitutional. The capital is Detmold, with a population of 7000. The ancestors of the present governing family had large possessions in Westphalia in the twelfth century. Bernard VIII. (died 1563) was the first Count of Lippe. Simon VI., who died in 1613, left three sons, the eldest of whom was the ancestor of the present princely line, the second founded the line of Brake (extinct in 1709), and the third the line of Bückeburg, now the ruling family in Schaumburg-Lippe. The area of the principality is 459 square miles; the population in 1875, 112,452.

SCHAUMBURG-LIPPE is the only other principality of North Germany, and lies a little to the north of Lippe, from which it is separated by portions of the Prussian provinces of Westphalia and Hanover. The surface is less hilly than in Lippe, and the soil mostly fertile, and here, as in the neighbouring principality, there are fine forests of oaks and beeches. Coal is obtained in considerable quantity, and linen yarns and tissues are manufactured. The principality enjoys a constitutional form of government granted in 1868. The capital is Bückeburg,

agreeably situated on the Aue at the foot of a small hill. (For the history see the previous section.) The area of the principality is 171 square miles, and the population in 1875, 33,133.

SCHWARZBURG. The two principalities of Schwarzburg, as well as those of Reuss, which still remain to be noticed, all belong to the Thuringian States. (See the section under this heading.) The former two are made up of two sections, called respectively the Upper Lordship and the Lower Lordship (*Ober-* and *Unter-Herrschaft*), both principalities having territories in each section. The Upper Lordship (which is not continuous) lies in the heart of Thuringia, the Lower is inclosed by the Prussian province of Saxony. **Schwarzburg-Rudolstadt** has one large and several small patches in the Upper and three in the Lower Lordship, **Schwarzburg-Sondershausen** two in the Upper and one in the Lower. The crops are much the same in both principalities, and include, besides the ordinary cereals, flax (in considerable quantity) and rape-seed. The forests (chiefly of Coniferæ) cover in Schwarzburg-Rudolstadt more than two-fifths, in Schwarzburg-Sondershausen about a third of the area, and in both more than two-fifths of these belong to the state. The minerals include lead, iron, and salt, all of which are worked to a considerable extent. Porcelain and glass are the chief manufacturing industries, and are carried on entirely in the Upper Lordship. Both principalities have a constitutional government, that of Schwarzburg-Rudolstadt granted in 1854, that of Schwarzburg-Sondershausen in 1857. Rudolstadt (8000), the capital of the one principality, occupies a charming situation on the Saale in the Upper Lordship, and possesses two castles, one of which, rebuilt in 1735 on a finely wooded hill, is the residence of the prince, while the other contains the library and collections. The educational institution of Keilhau, founded by Froebel in 1817, is not far off. Sondershausen (6000), the capital of the other principality, is situated in the Lower Lordship, at the confluence of the Wipper and the Beber, and is also a delightful residence. It has an elegant castle with a small museum of antiquities in which is preserved the Püsterich, a reputed idol of the ancient Germans. A county of Schwarzburg first appears in German history about the middle of the twelfth century. The line of counts became divided several times, and since 1599 has been divided into the two branches still subsisting, which were raised to the princely rank in 1754. Area of Schwarzburg-Rudolstadt, 364 square miles; pop. in 1875, 76,676; area of Schwarzburg-Sondershausen, 333 square miles; pop. in 1875, 67,480.

REUSS is the name of two principalities in Central Germany, composed, like those of Schwarzburg, of two sections, an Upper and a Lower Land, the former bordering on Bavaria and the Voigtland of the Kingdom of Saxony, and drained by the Saale; the latter lying between the two parts of Saxe-Altenburg, the Kingdom of Saxony, and the Saxe-Weimar province of Neustadt, and traversed by the Elster. **Reuss-Greiz**, the dominion of the elder line of the Reuss family, is made up of two segments in the Upper Land; while **Reuss-Schleiz**, belonging to the younger line, comprises the remaining and larger portion of the Upper

Land and the whole of the Lower Land. The surface of both sections is on the whole mountainous, or at least hilly, especially that of the Upper Land, which is traversed by the Franconian and Saale Forests, continuations of the Thuringian Forest. The Upper Land consists principally of palæozoic formations, particularly lower carboniferous, Devonian, Silurian, and Cambrian strata, in which are embedded large deposits of diabase or greenstone. In the Lower Land, besides new red sandstone and Permian limestone, the tertiary formation appears as well as large deposits of diluvial loam. Though not particularly well adapted for agriculture, the surface in both sections is carefully employed for this purpose, and besides the ordinary crops flax is grown to a large extent. Excellent pastures are met with everywhere, and cattle-rearing is accordingly an important branch of industry in the country districts. The forests are extensive in both principalities, and about one-half of them is in possession of the state in the dominions of the elder line, and in that of the prince in those of the younger line. Iron ores are now the only product of mining industry, though various other minerals were formerly worked. The manufactures are considerable, the principal being combed wool, yarn, and various kinds of woollen fabrics. The constitution of the younger line is based on the law of April 14th, 1852, that of the elder dates only from 1867. Greiz (13,000), the capital of the possessions of the elder line, is situated in the north-east of the Upper Land, and is a very ancient town. Schleiz (5000), in the middle of the Upper Land, though it gives name to one of the principalities, is not the most important town in it, nor the sole residence of the prince. By far the most important town in either of the principalities is Gera (21,000), in the Lower Land, which is the seat of government, has large woollen and other manufactures, and carries on a brisk trade in grain. The territory of Reuss was anciently occupied by the Slavonic tribe of Sorbs. The foundation of the family by which the territory is now held is referred to the first part of the twelfth century, and the present branches of the family sprang from Heinrich der Reusse (so called from being the son of a Russian mother), who died in 1294, and are the only ones that survive of numerous other branches into which the line was divided. The elder line was founded in the second half of the sixteenth century, and raised to princely rank in 1778. The younger line was founded about a century later, and was raised to the princely rank by Napoleon in 1807. It attained its present extent of dominion in 1848 on the abdication of the last prince of the Ebersdorf line, to which the former principality of Lobenstein also belonged. All the rulers of the Reuss family have borne from a very early period the name of Henry (Heinrich). In the older line they count up to one hundred and then begin again, in the younger line they begin at I. every century. Area of Reuss-Greiz, 123 square miles; pop. in 1875, 46,985. Area of Reuss-Schleiz, 321 square miles; pop. in 1875, 92,375.

FREE TOWNS.

The three free towns, or Hanse towns as they are often called, are the last survivors of the numerous free towns of the old German Empire and of the Hanseatic League, which seems to have originated in 1241 in an alliance between Lübeck and Hamburg, and which, in the height of its prosperity in the fifteenth century, numbered about ninety of the leading commercial cities of Germany (including the Netherlands) as its members. They are the only members of the German Empire that have a republican form of government. In all of them a senate, divided into different departments, is intrusted with the executive power. In Hamburg the senate consists of eighteen members elected for life by the house of burgesses (the legislative body), and presided over by a first and second burgomaster chosen annually by ballot. Of the eighteen members, nine must have studied jurisprudence or finance, and of the remaining nine seven must belong to the mercantile class. In Bremen the number of senators is seventeen, and they are elected by the citizens from candidates nominated by the senate. Ten must be lawyers and four merchants. In Lübeck the senate consists of fourteen members elected for life by a committee composed of an equal number of members of the house of burgesses and of citizens. Eight must belong to the learned professions, and among these at least six must be lawyers, and of the remaining six, at least five must belong to the mercantile class. The composition of the legislative bodies of the free towns is explained in the general account of the German Empire. Two of the free towns, Bremen and Hamburg, are in direct communication with the North Sea, and one, Lübeck, stands on the Baltic. The two former are free, not only in the sense of being self-governing, but also in being free of the Zollverein or Customs Union of Germany, of which Lübeck, on the other hand, is a member.

BREMEN, the westernmost of the free towns, is situated on both banks of the Weser about 45 miles from the North Sea. It consists of an old and a new town, the former on the right, the latter on the left bank of the river. The old town, which is now surrounded by large modern suburbs, but contains in the interior many houses dating from the Renaissance and some even from the middle ages, is the commercial quarter of the city; the new town is the seat of the manufactures of the place, and also contains the hotels which accommodate the numerous emigrants that sail from this port. The old town possesses a cathedral dating from the first half of the eleventh century, and furnished with a splendid organ. The celebrated wine-cellars of the town are kept always stored with the best wines of the Rhine, which are sold by the municipality at a fixed price. Bremen is the second port in the German Empire in respect of the magnitude of its commerce, its annual imports of merchandise amounting in value to about £15,000,000 by sea and £7,000,000 by land and river; its exports to about £7,000,000 by sea and £14,000,000 by land and river. Its commerce is principally carried on with the United States and other countries of America, the

White Sea, France, and England; and it may be mentioned that the merchants of Bremen, with an enterprise that has always characterized them, have been the first to profit by the new sea route to the ports of Siberia indicated in 1875–76 by Prof. Nordenskiöld. Among the industries of the place the most important is the manufacture of cigars, and Bremen is the first market in the world for tobacco. Bremen was made the see of a bishop by Charles the Great as early as 788, and from the time of the crusades took an active part in the commerce of the Baltic. It became a member of the Hanseatic League in 1284. Besides the territory immediately surrounding the town, Bremen possesses a small tract at the mouth of the Geeste, on the estuary of the Weser, purchased from Hanover

The Inner Haven, Hamburg.

in 1827. Here the port of Bremerhafen (13,000) has rapidly grown up, being capable of admitting ships of a greater burden than can ascend to Bremen itself. The area of the whole territory of Bremen is 98 square miles; pop. in 1875, 142,200; pop. of the town itself 107,000, with suburbs 111,000.

HAMBURG, the second city in point of population and the chief port in Germany, stands on the right bank of a northern arm of the Elbe about 70 miles from its mouth. A small arm of the river enters the town in the east and is diverted into numerous canals, and in the north a small river from Holstein, the Alster, forms two large basins, the Aussen- and the Binnen-Alster, by means of which vessels can ascend to the warehouses in the interior of the town. The port, formed by the principal stream of the Elbe itself, comprises between the quays of the town and the isles in the river a perfect labyrinth of channels, basins, and docks, swarming with vessels of all flags and all sizes. Hamburg is not only the chief port in the German Empire, but also the chief port on the mainland of Europe, London and Liverpool alone surpassing it in the whole con-

tinent. The annual value of its commerce is above £150,000,000, that of its imports by sea being about £50,000,000, by land and river about £35,000,000; of its exports by sea about £27,000,000, by land and river about £43,000,000. Since the introduction of railways its commerce has increased enormously, and its population has doubled since the middle of the present century. Hamburg, like Bremen, is one of those towns which owe their origin to the establishment of missionary centres in the north of Europe by Charles the Great and his son. After the formation of the Hanseatic League in 1241 it rapidly rose to a high position among European ports. Among the churches of Hamburg the most ancient are those of St. Catherine and St. James, belonging to the Gothic style

Lübeck, the Market Place, Senate House, and Cathedral.

of the close of the middle ages. Two others, those of St. Peter and St. Nicholas, burnt in 1842, have been restored in a rich and pure Gothic style, the latter after the designs of Sir Gilbert Scott. The territory dependent on Hamburg, especially that known as the Vierlande, lying between the Elbe and the Bille, is of rare fertility, and furnishes the city with abundant supplies of cattle, dairy-produce, vegetables, strawberries, cherries, and other fruits. The rich peasant proprietors of this locality are descended from a Dutch colony settled here in the twelfth century, and are still distinguishable by their dress and manners. Among the other dependencies of Hamburg is a small tract at the mouth of the Elbe on the left bank including the port of Cuxhaven. The total area of the territory belonging to Hamburg is 158 square miles; its total population in 1875, 388,618; pop. of the town itself, 265,000, with suburbs 348,000.

LÜBECK occupies an oval hollow at the base of a hill between the Trave and the Wakenitz, about nine miles from the place where the former falls into the

Baltic. The present city of Lübeck was founded near the site of an older Slavonic town named Liubice in the first half of the twelfth century, and from the thirteenth to the sixteenth century stood at the head of the Hansa or Hanseatic League already mentioned. At the time of its greatest prosperity Lübeck contained from 80,000 to 90,000 inhabitants, but it declined with the decline of the Hansa, and it has now sunk to about half its former population. It still preserves much of the aspect that it must have presented at the commencement of its decline. Part of its old fortifications still survive, and so also do its massive old Gothic houses, its numerous towers, monuments, and churches, and in addition to that, it is perhaps the town in Europe which has preserved the old most free from admixture with the new. Though declined from its former grandeur, it still carries on a large maritime trade principally with the ports of the Baltic. For these ports it may be regarded as an auxiliary of the port of Hamburg, with which it is connected by a canal. The area of the territory of Lübeck is about 109 square miles; its population in 1875, 57,000; pop. of the town itself, 45,000.

AUSTRIAN EMPIRE.

The Austrian Empire, or Austro-Hungary (in German, *Œsterreich-Ungarn*), is a state of Central Europe lying to the south-east of Germany. Its length on the parallel of 47° 15′ N. is about 770 miles; its breadth on the meridian of 22° E., about 415 miles.

	Area in sq. miles.	Proportion to Great Britain.	Population, census of 1880.	Pop. per sq. mile.	Increase per sq. m.
CISLEITHAN PROVINCES.					
Lower Austria	7,655	1/15	2,329,021	304	44
Upper Austria	4,633	1/30	760,879	164	4
Salzburg	2,767	1/52	163,566	59	4
Tyrol and Vorarlberg	11,325	1/8	912,690	81	3
Styria	8,670	1/10	1,212,367	139	8
Carinthia	4,006	1/23	348,670	87	3
Carniola	3,856	1/23	481,176	125	4
Görz and Gradiska, Istria, and Trieste	3,084	1/30	650,532	211	16
Dalmatia	4,953	1/13	474,489	96	4
Bohemia	20,063	2/5	5,557,134	277	21
Moravia	8,584	1/10	2,151,619	250	15
Silesia	1,998	1/45	565,772	290	34
Galicia	30,301	1/8	5,653,170	186	6
Bukowina	4,036	1/32	569,599	141	14
	115,931	1 1/8	22,130,684	191	15
TRANSLEITHAN PROVINCES.					
Hungary and Transylvania ...	108,279	1 1/8	13,697,999	126	1
Croatia and Slavonia	8,982	1/10	1,191,845	133	5
Croato-Slavonian Frontier ...	7,850	1/11	697,516	89	1
Fiume	8		21,363		
	125,119	1 1/8	15,608,723	125	2
Total	241,050	2 2/8	37,739,407	156	8

POLITICAL DIVISIONS.—The Austrian Empire is divided into two great sections, one of which is composed of the Austrian or Cisleithan Provinces, that is, the provinces on this or the Austrian side of the Leitha, a tributary of the Danube on its right bank, separating Austria proper from Hungary, and the other, of the Transleithan Provinces or Lands of the Hungarian Crown. In the table of the provinces of the empire at the foot of the preceding page, the second column of figures shows approximately the proportion of the area to that of Great Britain, as in the corresponding table of the German Empire, and the last the increase of population per square mile between the censuses of 1869 and 1880.

PHYSICAL FEATURES.—Although presenting every variety of surface, the prevailing character of the Austrian dominions is mountainous, there being few districts where mountains are not found; while the plains do not occupy more than a fifth part of the whole superficies. The loftiest ranges, and the most extensively ramified, are found in Tyrol, Styria, Illyria, and the southern parts of Austria proper. In some of these regions the scenery is bold and romantic, and may be compared with that of Switzerland. Round the north of Hungary the chain of the Carpathians extends through a distance of from 850 to 900 miles, attaining in some places a height of about 8500 feet. Level land occurs principally in Hungary, where an extensive plain is traversed by the Theiss and that portion of the Danube which flows north and south. The Danube (German, *Donau*) is by far the most important of the rivers of Austria, traversing the empire in a zigzag route from its western boundary to its south-eastern extremity, and receiving within that part of its course most of its principal tributaries; on the right the Inn, the Drave (or Drau), and the Save (or Sau), on the left the March or Morava, the Waag, and the Theiss or Tisza (with its tributaries the Körös and the Maros). Throughout its whole length within the Austrian territory the Danube is navigable for vessels of 100 tons, and all the tributaries above mentioned are likewise navigable. But while thus serving as an important means of communication between the upper and lower part of its course, the Danube is in a certain measure a hindrance to the communication between the lands on its opposite banks, for the river is so broad and rapid that to bridge it is a matter of great difficulty and expense, and there is now in fact no bridge across it (except a bridge of boats at Neusatz) from Buda-Pesth to its mouth, although such existed in the time of the Romans. Besides the Danube and its tributaries, the only important rivers in Austria are the Elbe (in Bohemia), the Dniester (in Transylvania), and the Vistula (on the Galician frontier). All of the rivers abound in fish. The lakes are numerous, and in the mountainous regions mostly picturesque, though those in the low lands, particularly in the plains of Hungary, are rather marshes than lakes.

GEOLOGY.—In respect of its geological features the Austrian Empire belongs to that section of Europe which is described in the general account of that continent as remarkable for the great diversity of its superficial structure, and it is one of the most characteristic countries of this section. All kinds of rocks and formations from the oldest to the most recent are found within its boundaries

spread over extensive areas; but crystalline and unstratified rocks, together with the older stratified rocks, predominate in the west, and the more recent stratified and volcanic rocks in the east. Looking at the geological structure of Austria as a whole we may describe it as consisting of a belt of very varied breadth, composed of all rocks down to the miocene nearly inclosing the alluvial basin forming the great plain of Hungary. The older crystalline and unstratified rocks are mainly developed in the Alps from the Tyrol to Styria, between about lat. 46° and 47° 20′, and in Austria proper, Moravia, and Bohemia from the Danube north to about lat. 50°. All the frontier mountains of Bohemia are also largely composed

The Valley of the Danube at Pressburg.

of these rocks, which are also met with in considerable patches in Transylvania, the north of Hungary, and elsewhere. Silurian and Devonian rocks are found along the north of the unstratified rocks of the Alps, and in Bohemia on both sides of a line extending from Pilsen to Prague. The carboniferous system is represented in the Alps of Salzburg, Styria, Carinthia, and Carniola, in Bohemia on the north and west of the Silurian tract, and along the southern slopes of the Riesengebirge, in Moravia and Silesia, and to a smaller extent in the north and south-east of Hungary. Triassic and Jurassic rocks are largely developed both along the north and south side of the crystalline nucleus of the Alps, from which, however, it is in great part separated on the north by the Silurian strata already mentioned. On the south side the rocks of which we are now speaking stretch away to the south-east through Carniola and Dalmatia. The chalk formation constitutes the nucleus of the Carpathian Mountains, and is also largely developed

in the north of Bohemia and Moravia, and in Istria and Dalmatia. Eocene and miocene deposits cover extensive areas in Transylvania, northern, western, and south-western Hungary, and all along the northern slopes of the Carpathians, from which they extend on the north-west down to the valley of the Danube, along which they are continued on the south side to the west of Salzburg. The more recent volcanic rocks (porphyry, melaphyre, trachyte, and basalt) are chiefly met with in Transylvania, and the north-east and north of Hungary, in all of which regions they are developed over pretty extensive areas. Finally, alluvial deposits not only occupy the great Hungarian plain, which extends northwards to a little above the latitude of Pesth, north-eastwards to about 48° 15′ N. lat. and 22° 30′ E. lon., and in the west forms a wedge terminating in two branches about 16° E., but also are found in a smaller basin lying on both sides of the Danube between Pressburg and Gran and communicating with the larger one by several isthmuses, and in the greater part of Galicia. A large portion of the countries now composing the Austrian Empire was, like a large part of Germany, at one time submerged by the sea. Throughout the greater part of Hungary the general appearance of its vast plains, the nature of their soil, and, above all, the occurrence of fossil sea-shells, leave no room to doubt the former dominion of the ocean; but while there are grounds for believing that the German plain was still under water during the second ice age, the Austrian plains appear at that time to have already entirely emerged above the surface.

CLIMATE, VEGETATION, AND ZOOLOGY.—Austria lies between the isotherms of 60° and 50°, and has a climate nearly as various as its surface. The northern regions, between the 49th and 51st degrees of north latitude, have an average temperature resembling that of the north of France. Between latitude 46° and 49° the heat is considerable; and between 42° and 46°, which comprises the whole of South Austria, it is still greater; the winter lasting only two or three months, and being, in general, extremely mild. In this region, besides all the ordinary cereals, the mulberry and the olive, rice, maize, wine, figs, and here and there other southern fruits flourish. Further north, from 46° to 50° all kinds of grain, including maize, thrive, and in some districts (especially Lower Austria) excellent wines and fruit are grown. Beyond lat. 50° N. grain crops are less abundant, and hemp and flax and sugar-beet are more largely cultivated. The heaviest rainfall occurs in the Alpine regions, the least in Dalmatia, Istria, and the Hungarian plain, where on the other hand there are heavy dews. The maritime tracts are exposed to periodic cold storms from the north-east (the *bora*), and also to the oppressive sirocco from the south-west. In Tyrol the *föhn* is experienced. (See SWITZERLAND.) The snow-limit is found on an average at a height of from 8400 to 8600 feet in the Alps, and from 8200 to 8400 in the Carpathians. Of the **agricultural products** above mentioned, wine is most largely grown in Dalmatia, the Croato-Slavonian Frontier, Hungary, the Tyrol, Istria, and Görz and Gradiska, in all of which the annual production exceeds 11 gallons per head. Sugar-beet is principally grown in Bohemia and Moravia, tobacco (a state monopoly) in the Tyrol and Transylvania. The **forests** cover 69,000 square miles, or one-third of the productive soil of the empire, and yield

timber of excellent quality, adapted for all purposes. They are most extensive in the Bukowina, Styria, Carniola, and Carinthia, in all of which they cover more than two-fifths of the surface. Among animals, all the domestic animals of England are known throughout the empire. Fine races of cattle are found, however, only in the Alpine provinces, while Dalmatia and the other maritime provinces, though possessing pastures of the richest kind, are very deficient both in respect of the number and the quality of their cattle. The rearing of sheep, on the other hand, is a very important industry in the agricultural districts of Austria, and is carried on with peculiar assiduity and skill in Moravia and Silesia, Bohemia, Upper and Lower Austria, and to some extent also in Hungary. In the last-mentioned province the number of sheep is remarkably great, but the proportion of the finer breeds smaller than in the others. Horses are reared chiefly in Hungary and Transylvania, and fine breeds of a strong and heavy make in Salzburg, Upper Styria, and the adjoining districts. Herds of a native breed of horses of small size roam wild over the plains of Hungary. Wild deer, wild swine, chamois, foxes, lynxes, and a species of small black bear are found in many districts, the fox and lynx being particularly abundant. As to the condition of the agricultural population see below, section on People.

MINERALS.—The mineral resources of Austria are not inferior to those of Germany, but their working, although begun at an earlier date, is not developed to nearly the same extent. In the Noric Alps and the Carpathians mining was carried on even in the time of the Romans, and in the middle ages the miners of Moravia and Bohemia enjoyed a wide celebrity. All the metals except platinum are found in one part of the empire or another, and in addition to these, coal, salt, cobalt, arsenic, and other minerals are also found. The principal mining provinces are Bohemia, Styria, Silesia, and Upper Austria among the Cisleithan provinces, and Hungary (the northern districts) and Transylvania among the Transleithan.

MANUFACTURES.—The manufacturing industry of Austria has received a great impetus from the abolition, in 1860, of all the restrictions by which it was formerly impeded, and the establishment of chambers of trade and commerce, polytechnic institutions, &c.; and its advances in recent years are far more striking than those which the empire has made in agriculture. Manufactures are in the most flourishing condition in Bohemia, Moravia, Silesia, Lower Austria, and Vorarlberg; less so in the eastern provinces, and insignificant in Dalmatia, Bukowina, and Croato-Slavonia. The principal articles of manufacture as indicated by total value are cotton, woollen, and linen goods, leather, articles in gold, silver, iron, and steel, besides glass and earthenware. The principal seats of the cotton manufacture are the north- and north-west of Bohemia, Lower Austria, and Vorarlberg; those of the woollen manufacture, Moravia, Bohemia, and Silesia; that of linen, Bohemia. In the manufacture of scientific instruments Austria holds a high position; those of Vienna are especially celebrated. The manufacture of stone and china ware is very extensive, especially in Bohemia, and gives rise to a brisk export trade. The glass manufacture is one of the oldest and most highly developed branches of industry in Austria. The manufactories are spread over the whole of the monarchy except Dalmatia

and the other maritime provinces, but are most numerous in Bohemia, where glass and glasswares of every kind are produced. The iron manufacture is now carried on to a great extent, and some of the iron and steel goods, such as scythes and reaping-hooks, have a world-wide reputation. In the making of machinery also Austria has made great advances, and now supplies four-fifths of its own demand. In gold and silver plate and jewelry the articles of Vienna workmanship compete successfully with the French. As regards articles of food, the manufacture of sugar from beet is largely carried on in Bohemia and Moravia. The manufacture of tobacco, like its cultivation, is a state monopoly, and is carried on in large establishments in both sections of the empire. Tanning is carried on to the greatest extent in Moravia, Lower Austria, and Bohemia, yet not sufficiently to supply the demand. The manufacture of leather goods, however, is very large, and in the production of gloves (in Vienna and Prague) Austria stands next to France. Boots and shoes also are manufactured in great quantity, and exported to Germany, Russia, Roumania, Egypt, South America, and latterly even to Australia.

MEANS OF COMMUNICATION.—In spite of the large number of navigable streams in Austria, the divergence of their basins and the thickness of the mountain ranges that separate them do not admit of the construction of an artificial system of inland navigation such as exists in England and France. The rivers themselves, however, form important waterways, and above all the Danube, which was long almost the sole grand commercial route between the interior of Austria, the south of Germany, and the Black Sea. Since about 1850 the traffic upon the tributaries of this river has greatly increased in activity, chiefly in consequence of the introduction of steamboats. The insufficiency of the internal waterways, especially in the western provinces, has been made up for by the construction of good roads, though the mountainous character of the country rendered this in many cases a work of great difficulty. The construction of these roads was commenced about the middle of last century. The period 1816 to 1825 is memorable on account of the construction of the great commercial and military roads leading from Austria to Italy over the passes of the Alps, and especially of the road over the Pass of Stelvio or the Stilsserjoch, the most elevated in Europe, on which one descends from the height of upwards of 9500 feet in passing from the Tyrol to Bormio. The length of the railways of the Austrian Empire is equal to about one mile for every 21 square miles of surface (in the Cisleithan provinces about one for every 17, in the Transleithan about one for every 28). The number of private letters annually carried by the post-office in the whole empire is equal to more than 6 per head of the population (in the Cisleithan provinces 8 per head, in the Transleithan more than 3 per head). The annual number of telegrams in the empire is equal to about one for every 4½ persons (in the Cisleithan provinces to about 1 for every 4, and in the Transleithan to about 1 for every 5).

COMMERCE AND SHIPPING.—The external commerce of the Austrian Empire, as might be expected from its situation, is principally carried on by land (including river and canal navigation), the land commerce amounting to

about four times as much as the maritime. The countries with which it is principally carried on are Saxony, South Germany, and Prussia, the countries next in importance in this respect being Turkey, Italy, and Russia. The transit trade is equal to considerably more than one-half of that originating in or destined for Austria. Manufactured articles form the largest head both in the imports and exports of Austria, and in both cases woven fabrics, yarns, and articles in metal are the chief; but whereas the imports and exports of tissues nearly balance each other, the import of yarns is twice as great as the exports, and the exports of articles in metal about thrice as great as the imports. After these three articles those of next consequence among the imports are raw materials (chiefly fibres for spinning), and among the exports cereals, colonial wares, and animals and animal products. The trade of Great Britain with Austria is not very large, but its real amount cannot be determined, as the Board of Trade returns give only the trade carried on directly between British and Austrian ports, while Austrian produce passing through other countries before being shipped for Britain is included among the imports and exports of the respective countries. The principal articles exported from Austria to the United Kingdom are corn and flour, and those imported into Austria from the United Kingdom cotton manufactures and iron. The shipping of Austria is centred in Trieste.

MONEY, WEIGHTS, AND MEASURES.—In Austria accounts are kept in *gulden* or florins of 100 *neukreutzer* each, the value of the florin being 2*s.* sterling. Practically the chief medium of exchange is bank-notes, of all denominations from 1000 florins to 1 florin. These circulate at the rate of from about 8 to 20 per cent below par. The Austrian *centner*, the weight by which all large quantities are rated, is 123½ lbs. avoirdupois. The *metze*, the largest dry measure, is equal to 1·7 imperial bushel. The *eimer*, the most generally used liquid measure, is equal to 14·94 English wine gallons. The Vienna foot is equal to 12·45 inches English. In superficial measure the *joch* of land is equal to 1·43 English acre.

RELIGION AND EDUCATION.—At the census of 1869 the numbers of the various confessions in the Austrian Empire were as follows:—

Roman Catholics, ...	23,954,233	Calvinists, ...	2,143,178
Greek Catholics, ...	3,941,796	Unitarians, ...	55,070
Oriental Greeks, ...	3,050,830	Other Christians, ...	17,039
Lutherans, ...	1,365,835	Jews, ...	1,375,861

The Roman Catholic is the religion of the state, and belonging to this church there are nine archbishoprics — namely, those of Vienna, Salzburg, Görz, Prague, Olmütz, Zara, and Lemberg, at the last of which there are three, one each for the Catholics of the Latin, Greek, and Armenian rites. The civil power exercises supreme control in all ecclesiastical matters, the emperor being, in everything but the name, head of the church; and as no sentence of excommunication, or other ecclesiastical edict, can be issued without the sanction of the crown, the pope's direct authority in Austria is more limited than in some other countries. For the Oriental Greek Church there are three metropolitans in the empire — the Austrian at Czernowitz, the Servian at Carlo-

witz, and the Roumanian at Hermannstadt. The Roman Catholics outnumber all other sects put together in most provinces of the empire, and they form the most numerous body in every province except Transylvania, where they are outnumbered both by the Oriental Greeks and the Greek Catholics, and Bukowina, where they are outnumbered by the former only. Elsewhere Oriental Greeks are most numerous in Hungary, Croatia, Slavonia, and Dalmatia, and Greek Catholics in Galicia and Hungary. The Protestants both of the Calvinistic and Lutheran confession are most numerous in Hungary and Transylvania, and the Jews are found in greatest number in Galicia and Hungary.

The educational system of the Austrian Empire was reorganized by the laws of 1868 and 1869, which laid the obligation of erecting elementary schools upon the communes. In most of the Austrian provinces children are declared to be of school age from the end of the sixth to the end of the fourteenth year; in the Hungarian and some of the Austrian provinces, from the end of the sixth to the end of the twelfth year Between these years attendance on the elementary schools is according to the law compulsory, and in the Hungarian provinces there is a higher class of people's schools, called "Repetition Schools" (*Wiederholungsschulen*), on which attendance is compulsory for young people of thirteen to fifteen years complete, in so far as they do not attend another or higher educational institution, nor receive instruction at home. But while this is the law in the empire, education is still in fact very backward within its boundaries. According to the most recent information only about 57 per cent of the children of school age are actually in attendance at school (in the Austrian provinces 59 per cent, in the Hungarian 55 per cent). School attendance is least in the Bukowina, Galicia, and Dalmatia, where only a small fraction of the children of school age actually attend school, while in Vorarlberg the proportion of those attending school amounts to 90 per cent, in the Tyrol to 89 per cent, Salzburg 86, Upper Austria 83, Bohemia, Moravia, and Silesia 78–79, and Lower Austria 76 per cent. Above the elementary schools there are "real-schools" and gymnasia, corresponding to the same classes of schools in Germany; and higher education is provided for by the universities, the technical high-schools, and the various institutions in which

Slavonian Shepherd and Water-carrier.

particular subjects are taught. There are ten universities in the monarchy, namely, in Vienna (Lower Austria), Prague (Bohemia), Innsbruck (Tyrol), Gratz (Styria), Agram (Croatia), Pesth (Hungary), Klausenburg (Transylvania), Czernowitz (Bukowina), and Lemberg and Cracow in Galicia. Most of these have four faculties—Catholic theology, law and politics, medicine, and philosophy. In Czernowitz and Agram there is no medical, and in Klausenburg no theological faculty; and in the first-mentioned of these universities the theological faculty belongs to the Oriental Greek Church. The technical high-schools are seven in number, one each at Vienna, Gratz, Brünn (in Moravia), Lemberg, Cracow, and Buda-Pesth, and two, a German and a Czech, at Prague. Each of these is divided into three or four departments, and that of Vienna, which is styled a polytechnic institute, into five.

PEOPLE, &c.—None of the European states, with the exception of Russia, exhibits such a diversity of race and language among their population as does the Austrian Empire. The Slavs, who amount to above 16,000,000, or nearly 45 per cent of the total population, are the chief of the component nationalities of the monarchy in point of numbers, forming the great mass of the population of Bohemia, Moravia, Carniola, Galicia, Dalmatia, the Kingdom of Croatia and Slavonia, and Northern Hungary, and half the population of Silesia and Bukowina. This preponderance, however, is only apparent, as none of the other races are split up into so many branches, differing so greatly from each other in language, religion, civilization, manners, and customs. The following table will give a good idea of the proportion and distribution of the different nationalities:—

Nationalities.	Principal Localities.	Cisleithan Provinces.	Transleithan Provinces.	Whole Empire.
		per cent.	per cent.	per cent.
Germans, ...	Upper and Lower Austria, the Tyrol and Vorarlberg, Carinthia, N. Styria, the borders of Bohemia and Moravia adjoining Germany, and elsewhere in isolated settlements,	36·2	11·5	25·5
Slavonians, ...		55·7	30·7	44·4
Czechs, Moravians, and Slovaks, ...	Bohemia, Moravia, N.W. of Hungary, ...	22·5	11·7	17·3
Ruthenians, ...	Galicia, ...	12·8	3·0	8·5
Poles, ...	W. Galicia, ...	12·1	—	6·9
Slovenians, ...	Carniola and S. Styria, ...	5·6	0·3	3·3
Croatians and Servians, ...	Croatia, Slavonia, Istria, and Dalmatia, ...	2·7	15·7	8·4
Jews, ...	Galicia and Hungary, ...	4·1	3·6	3·8
Roumanians, ...	Transylvania and Bukowina, ...	0·9	17·3	8·0
Magyars, ...	Hungary & Eastern Transylvania,	—	35·6	15·5
Other nationalities,		3·1	1·3	2·8

In respect of the occupations of the people there is a great difference between the east and west of the empire in the proportion of adults devoted to agriculture and forestry and to manufacturing industries. In the west the proportion of the manufacturing population is about thrice as great as in the east, varying from about 4 per cent of the whole in Dalmatia to 25 per cent in Bohemia and Mora-

via. In Bohemia the proportion of the adult population engaged in agriculture is only 41 per cent, whereas in Hungary it rises to 67 per cent, in Transylvania to 75 per cent, in Galicia to 77 per cent, and in Croatia and Slavonia to 80 per cent. Since the passing of the land laws of 1848–49 a great improvement has taken place in the condition of the agricultural population of Austria. Till that time the small holders, though owners of the land they held, having even the right to sell it on the payment of certain dues, were liable for certain services to their feudal superiors. But by the passing of these laws such services were abolished, and the holders of the land made unconditional proprietors, compensation being made to the feudal superiors to whom their services were previously due. These laws have had the most beneficial effect. The peasant proprietors of Austria are now said to be in very thriving circumstances, and the value of land there is stated to have increased 100 per cent within the last thirty years.

There are only four towns in the Austrian Empire with more than 100,000 inhabitants, namely, Vienna, which with its suburbs has a population of more than 1,000,000, Buda-Pesth (370,000), Prague (235,000), and Trieste (133,000).

GOVERNMENT AND DEFENCE, &c.—As already mentioned, Austria now consists of a German, or Slavo-Germanic, or Cisleithan Monarchy, and a Transleithan or Hungarian Kingdom, each with its own parliament, ministers, and government. "The connecting ties between them," says the *Statesman's Year-Book*, "consist in the person of the hereditary sovereign, in a common army and navy, and in a governing body known as the Delegations. The Delegations form a parliament of 120 members, one-half of whom are chosen by and represent the legislature of German Austria, and the other half that of Hungary, the upper house of each returning twenty, and the lower house forty deputies. In all matters affecting the common affairs the Delegations have a decisive vote, and their resolutions require neither the confirmation nor the approbation of the representative assemblies in which they have their source. The ordinary mode of procedure for the Delegations is to sit and vote in two chambers, the sixty deputies of Austria proper forming the one, and the sixty of Hungary the other. But it is provided that if no agreement can be arrived at in this manner, the two bodies must meet together and without further debate give their final vote, which is binding for the whole empire. Specially within the jurisdiction of the Delegations are all matters affecting foreign affairs, war, and finance." The Delegations meet every year in Vienna and Buda-Pesth alternately.

The constitution of the Cisleithan Monarchy was finally established in Dec. 1867. By it the legislative authority is vested in the Reichsrath, which consists of an upper house, or house of lords (*Herrnhaus*), and a lower house, or house of deputies (*Abgeordnetenhaus*). The former is composed of princes of the imperial family, of nobles whose families have a hereditary right to this dignity, of the archbishops, the bishops of princely rank, and of a certain number of life members nominated by the emperor. The lower house consists of 353 members, elected by all citizens above twenty-four possessing a small property qualification. The rights belonging to the Reichsrath are—consent to all laws relating to military service; co-operation in the legislation on commercial matters, customs, railways,

&c.; and examination of the estimates of the income and expenditure of the state, and other financial matters. In addition to the general legislature of the Cisleithan provinces as a whole, there is also a local legislature for each of the seventeen provinces, namely, Bohemia, Dalmatia, Galicia, Upper Austria, Lower Austria, Salzburg, Styria, Carinthia, Carniola, Bukowina, Moravia, Silesia, Tyrol, Vorarlberg, Görtz and Gradiska, Istria, and the free town of Trieste. The provincial diets are composed of the archbishops and bishops, the chancellors of the universities, the representatives of the great estates, of towns, of boards of commerce, and of rural communes. The laws passed in these diets are naturally of

Vienna.

a local nature, having reference to county taxation, agricultural, educational, and other matters.

The constitution of Hungary, including also Croatia, Slavonia, and Transylvania, dates from the foundation of the kingdom, or about 895 A.D. It rests upon a number of statutes published at long intervals, the principal of these being the "Bulla Aurea" of Andrew II., granted in 1222, by which the government was defined as an aristocratic monarchy. The legislative power is vested in the king and the diet or Reichstag conjointly. The latter consists of an upper house or house of magnates, and of a lower house or house of representatives. The house of magnates is composed of princes of the blood, archbishops and bishops, peers and dignitaries, besides two deputies of Croatia and Slavonia, and six of Transylvania. The members of the lower house are elected by all citizens of full age paying direct taxes to the amount of 16*s.* a year. The Hungarian Reichstag corre-

sponds to the Reichsrath of the Cisleithan provinces, and accordingly only deals with such matters as are common to the provinces belonging to the Hungarian crown. Transylvania is, so far as legislation and administration are concerned, entirely incorporated with Hungary. Croatia and Slavonia, however, have a Landtag or diet of their own, which, like the provincial diets of the Cisleithan portion of the empire, consists of only one chamber, and which is competent to deal with all matters belonging to the interior administration of the provinces, with religion and education, and with the administration of justice. Fiume, which was formerly associated with Croatia and Slavonia and subject to the Landtag of these provinces, has since August, 1870, been put directly under the central Hungarian government.

There being three distinct parliaments in the empire, there are also three budgets, that, viz., for the whole empire, that for Cisleithan, and that for Transleithan Austria. A small portion of the imperial revenue of Austria is derived from customs and other sources, and the remainder is made up by the two divisions of the empire, 70 per cent thereof being contributed by the Cisleithan and 30 per cent by the Transleithan portion. The revenue of the Cisleithan Monarchy is principally derived from the state monopolies of tobacco and salt, direct taxes on land, buildings, incomes, &c., customs duties, excise duties on sugar, beer, spirits, and wine, &c., stamps, and a state lottery. The debt charges absorb between a fourth and a third of the revenue. The Transleithan Monarchy has the same sources of revenue as the Cisleithan, but derives a more considerable proportion of its income (about one-eighth of the whole) from state domains and establishments.

Military service is obligatory on all citizens capable of bearing arms who have attained the age of twenty. The period of service is twelve years, and at its commencement one must not be less than seventeen nor more than thirty-six. Of the twelve years of service three are passed in the line, seven in the reserve, and two in the landwehr. In the navy the term of service is eight years. On a peace footing the army numbers about 270,000, and on a war footing about 775,000 men. The principal naval station of Austria is Pola, and the principal arsenal Trieste.

HISTORICAL SKETCH.—In the first centuries of the Christian era, all the territory now composing the empire of Austria, except Austria proper north of the Danube, Bohemia, Moravia, and Galicia belonged to the Roman Empire. The Tyrol belonged partly to the province of Rhætia (which comprised also parts of Bavaria, Baden, and Switzerland), and partly to Noricum, which latter province embraced nearly all Austria proper south of the Danube, the whole of Salzburg and Carinthia, all except the east and south of Styria, and all the northern part of Carniola. Istria and Dalmatia were included in the province of Illyricum-Dalmatia, and the province of Pannonia included the whole territory between Noricum on the west, the Danube on the north and east, and a line drawn a little to the south of the Save from the junction of that river with the Danube. All the rest belonged to the province of Dacia, which was abandoned by the Romans about 270 A.D. The Austrian

Empire may be said to have originated in the foundation of the Eastern Mark or March, between the Enns and the Raab on the south of the Danube, by Charles the Great about the end of the eighth century. To this territory Upper Austria was added in 1156, and at the same time this dominion was raised to the rank of a duchy. About the middle of the thirteenth century the duchy (to which Styria had meantime been added) came into the possession of Ottokar of Bohemia. In 1276 Ottokar was compelled to cede all his dominions to Rudolf of Hapsburg, who had been elected emperor of Germany, but whom Ottokar had refused to recognize. It was thus that the Austrian dominions passed over to the house which still possesses them, and which at that time had also considerable but scattered possessions in Alsace, and what is now Northern Switzerland. In 1283 a division of the Austrian territories was made between the sons of Rudolf, by which Bohemia was severed from the Duchy of Austria, so that at the close of the thirteenth century the dominions of the dukes of Austria comprised besides Austria proper only Styria and the possessions in the west. The following table, in which the principal subsequent gains and losses of Austria are recorded, with the dates of the gains on the left and those of the losses on the right, will give a good idea of the territorial history of Austria from 1300 downwards. The names of territories no longer Austrian are printed in italics. To the information contained in this table it need only be added that the title of Emperor of Austria was first assumed in 1806 by Francis I. on his relinquishing the title of Emperor of Germany:—

Acquired.		Lost.
1335	Carinthia and part of Carniola, by inheritance and imperial infeftment.	
1363	The Tyrol proper, with the greater part of the remainder of Carniola, by succession treaty.	
1365–1759	Vorarlberg, by purchase, treaty, and conquest.	
1367	*Breisgau* in Baden, by purchase.	
1382	Trieste and adjacent territory, by voluntary submission.	
	Several *districts in Switzerland*, through the defeats of Sempach and Näfels, ...	1386–88
	Territories in Aargau, &c., conquered by the Swiss Confederates,	1415–18
	Thurgau ceded to the Swiss, ...	1461
1478	The *Netherlands* by marriage.	
1500	Görz and Gradiska.	
1500–1518	The remainder of the Tyrol except the bishoprics of Trent and Brixen.	
1516	*Spain and Spanish America*, *Naples*, and *Sicily*, inherited by Charles V. from his maternal grandfather Ferdinand of Spain.	
	Spain and the *Spanish Dominions* with the *Netherlands* separated by Charles V. from the rest of his possessions, which were given to his brother Ferdinand, ...	1521
1526	Bohemia (including *Lusatia*) with Moravia and *Silesia* by succession treaties and free choice of the states.	
1526	Hungary by marriage and election. (The southern and eastern portion at that time in the hands of the Turks.)	

Acquired.		Lost.
	Lusatia ceded to the Elector of Saxony, ...	1635
	Alsace ceded to France, ...	1648
1696	Transylvania ceded by Prince Michael II.	
1699	The remainder of Hungary with Croatia and Slavonia, ceded by the Turks in the Peace of Carlowitz.	
1714	The *Spanish Netherlands*, the *Milanese territory*, *Naples*, and *Sardinia* (in the Peace of Rastadt confirming that of Utrecht).	
1718	The Banat in the south-east of Hungary acquired from Turkey in the Peace of Passarowitz.	
1720	*Sardinia* exchanged for *Sicily*, ...	1720
1735	Duchies of *Parma* and *Piacenza* ceded by Spain in the Peace of Vienna.	
	Naples and *Sicily* ceded to Spain in the same peace, ...	1735
	Nearly all *Silesia* ceded to Prussia in Peace of Breslau, ...	1742
	Parma and *Piacenza* ceded in Peace of Aix-la-Chapelle, . . .	1748
1772	Eastern Galicia, in first partition of Poland.	
1776	Bukowina ceded by the Turks.	
	The *Netherlands* ceded to France, and the *Breisgau* to the Duke of Modena, ...	1797
1797	Istria and Dalmatia as compensation for the cessions just mentioned.	
	All the remaining *possessions in Switzerland*, in Peace of Lunéville, ...	1801
1803	The secularized bishoprics of Trent and Brixen in the Tyrol.	
1805	Salzburg in the Peace of Pressburg, in compensation for various ceded territories afterwards restored.	
1814	*Lombardy* and *Venetia* in Peace of Paris.	
1846	The Grand-duchy of Cracow, with portions of Galicia previously ceded.	
	Lombardy ceded to Sardinia in Peace of Zürich, ...	1859
	Venetia ceded to Italy in Peace of Vienna, ...	1866
1878	Bosnia and Herzegovina with sanjak of Novi-Bazar, all still under the suzerainty of Turkey, but the first two occupied and administered, the last only occupied by Austria.	

CISLEITHAN PROVINCES.

LOWER AUSTRIA (in German, *Niederösterreich*) is the name given to that part of the Archduchy of Austria which, on the south side of the Danube, lies below the Enns. The part lying south of the Danube belongs, in the south, to the Alps, which here attain in the Schneeberg the height of 6809 feet, and in the Œtscher that of 6189 feet. To the north of the Alps proper is a lower range to which the northern part of the Wienerwald belongs, and beyond that again to the Danube the surface is partly hilly and partly level. The district north of the Danube is in the west a high-lying country intersected by deep river beds, and towards the east it gradually sinks down to the plain of the Marchfeld. The climate is on the whole temperate and healthy, especially in the valley of the Danube, but is liable to great variations in temperature. In the east the vine

thrives, while in the mountains of the south and in the severe climate of the hill-country in the north-west even fruit grows only sparingly. In general the agricultural products are abundant, though they do not suffice to meet the wants of the dense population. The vineyards occupying the sunny slopes of the spurs of the Wienerwald yield some excellent sorts of wine, and poorer sorts are grown in some other parts of the province. Mining industry is mainly occupied with the production of iron, but coal, alum, graphite, besides stones and earths, are also obtained to some extent. Mineral springs of some celebrity exist at Baden, a few miles south of Vienna. Besides Vienna, where a great variety of manufactures is carried on, the principal centres of manufacturing industry are the neighbourhood of Waidhofen in the west, where iron is wrought, and the plain round Neustadt, the chief seat of the cotton-spinning. Hand-weaving is largely pursued in the north-western highlands. The total area of the province is 7655 square miles, and the population in 1877, 2,172,488.

The Hof Square, Vienna.

The only important town in Lower Austria is Vienna (German, *Wien*), the capital of the whole empire. Lying in the same latitude as Munich, and only about half a degree below that of Paris, it occupies a charming situation on the right bank of the Danube, in a small plain overlooked by grass-covered or wood-clad hills of various elevation. Formerly the Danube at Vienna consisted of numerous winding channels, which were constantly changing their direction as the islets and marshes that separated them altered their position, and at that time the city was washed by only one arm of the stream. But in the last century this arm was converted into a canal which completely traverses the city, and in its passage through it receives the Wiener Fluss before rejoining the main stream. At the same time a bed of nearly 2000 feet in breadth, bordered by well-built quays, was dug out for the main stream, and the portion between it and the canalized arm is now occupied partly by new quarters of the town, partly by the magnificent park of the Prater, covering an area of 4230 acres, or about 6⅔ square miles. The old town of Vienna is still the nucleus of the city, and even the seat of the court and the centre of fashionable life. It occupies a small semicircle on the right bank of the Danube, and though its streets are narrow and often crooked they are well paved and lined by lofty and substantially built houses. Round this portion of the city is a zone 1300 feet in breadth known as the

Ring, formerly occupied by fortifications but now by handsome streets, squares, and gardens, and separated from the old town by a spacious street about 160 feet in width, bordered on both sides by trees. Of the public buildings of the city the most venerable and the most conspicuous at a distance is the cathedral of St. Stephen's, part of which is the remains of a Romanesque basilica of the twelfth century, and the rest Gothic in style, and dating from the fourteenth and fifteenth centuries, though the front was completed only in 1855. In the south-west of the city is the castle of Schönbrunn, the summer palace of the emperors, completed by Maria Theresa in 1744, and surrounded by a large and admirably laid out garden. The University of Vienna, founded in 1365, is next after Prague the oldest in the empire, and has the largest attendance of any university in the world. It is particularly celebrated for its medical school, the reputation of which at the present day stands higher than any other. Like the sister capital of Germany Vienna has grown with great rapidity during the present century. In 1800 it contained only about 260,000 inhabitants, in 1830 about 318,000, and at the census of 1880 contained with its suburbs a population of no less than 1,083,000. Two-thirds of the population of Vienna are of German origin, and seven-eighths are German in language and manners. Among the latter are the Jews, who number about 60,000. Of the non-German population the most important section is the Czechs and Slovaks, who are largely represented in the artisan class and among domestic servants. Vienna is an ancient town, and bore in Roman times the name of *Vindobona*, probably a Latinized form of a Celtic name signifying "abode of the Wends." It was included in the eastern mark on the foundation of that government by Charles the Great in the eighth century, and about 1142 it was chosen as the residence of the margraves.

UPPER AUSTRIA (*Oberösterreich*) is that division of the Archduchy of Austria which is separated on the south side of the Danube by the Enns from Lower Austria, and by the Inn from Bavaria. The portion of this territory lying south of the Danube contains Alpine peaks rising in some cases to the height of from 8000 to 10,000 feet, the principal being the Dachstein, Priel, and Purgas. North of the Danube it belongs in part to the Böhmerwald, in part to the lofty hill country which also spreads over a large part of Lower Austria, and which in the upper as in the lower division is intersected by deep river beds. The remainder of the territory consists mainly of low hills and plains. Alpine lakes are numerous, and for the most part picturesque. The climate resembles that of Lower Austria, but is on the whole a degree colder, so that the cultivation of the vine is not practicable. More than half the surface is arable, and the land is more fertile and agriculture further advanced than in Lower Austria. Garden cultivation is carefully pursued in many districts, and orchards exist wherever the climate admits of them, in consequence of which cider and other liquors made from fruit are more favourite beverages than wine. The pastures are more extensive than in Lower Austria, and the forests not less so, the latter occupying not much less than two-fifths of the productive surface, or about one-third of the whole. Among minerals, the most important are common salt and lignite; copper, iron, vitriol, cobalt, arsenic, and sulphur being also obtained, though not

to any great amount. The salt-mines are situated in the district called the Salzkammergut ('estate of salt chambers') in the south of the province, where there are enormous deposits of rock-salt, of which in the south-east an entire mountain, the Salzberg, is composed. The quarries of Upper Austria are also of great value, especially the gypsum quarries near Ischl and Goisern, the millstone quarries at Perg and Dachsberg, and the granite quarries near Mauthausen, which supply Vienna with its excellent paving-stone. Manufacturing industry is not so highly developed as in Lower Austria; but hand-weaving is largely pursued in the highlands north of the Danube, the iron industry is important in the neighbourhood of Steyer on the Enns, and woollens and leather are manufactured at Linz on the Danube. This last town (pop. 36,000) is the capital of the province, and is a clean and well-built town, possessing an old castle (now used as barracks) and a fine cathedral of modern date. The town owes its activity chiefly to the river navigation, of which it is one of the principal centres. Its women are celebrated for their beauty, and are distinguished by their helmet-shaped head-dresses glittering with gold. The area of the province is 4633 square miles, and its population in 1877, 748,196.

As stated in the general historical notice of the Austrian Empire the Archduchy of Austria was originally a mark or frontier government instituted by Charles the Great. Near the close of the tenth century this territory, then having an area of only about 7000 square miles, came into the possession of the family of Babenberg, and the name Austria (*Ostirrichi*) is first met with about the same date. In 1156 the territory was enlarged and raised to the rank of a duchy, and the title of archduke, which is borne by no other family than the house of Hapsburg, and is said by some to have been first assumed by Rudolf of Hapsburg at the end of the thirteenth century, was first formally conferred by imperial letters patent in 1453. The district of Upper Austria which bears the name of the Innviertel, lying between the Hausruck range of hills, the Danube, and the Inn, was only acquired from Bavaria in the Peace of Teschen in 1778.

SALZBURG, which has the rank of a duchy among the Austrian provinces, lies to the south-west of the Archduchy of Austria, between the Tyrol in the west and Styria in the east. A small portion of its surface in the north belongs to the Bavarian plateau, but the remainder is mostly mountainous and gradually rises to the crest of the Middle Alps, which are here crowned by several peaks from 8000 to 12,000 feet in height. The highest summits are those of the Hohe Tauern in the south, where the Gross Venediger rises to the height of 12,047 feet, and the Dreiherrenspitze, the Viesbachhorn, the Hochnarr, and the Ankogel approach that height. The higher valleys of this range are filled with numerous glaciers, which on the Salzburg side cover altogether about 120 square miles. The principal stream is the Salzach, which in the upper part of its course receives the waters of all the torrents of the Tauern chain. Several of these are remarkable for their waterfalls, those of the Krimler Ache being the highest in the empire. Although about 80 per cent of the surface is productive, the conditions of the soil and climate are so unfavourable that the yield of cereals suffices to meet only about one-half of the consumption. The greater part

of the productive surface is taken up by woods and commons (*almen*), each of which occupies considerably more than a third of that area. The commons are of great importance for the rearing of cattle and dairy farming, which have here reached a higher stage than in most other parts of the empire. Horses also are reared, and the mountain race of Pinzgau in the south-west is considered to furnish the best draught-horses in Austria. Of mineral products the most important is salt, which is obtained in great quantity at Hallein, near the Bavarian frontier. Those of less consequence are gold, silver, copper, iron, nickel, and arsenic. The duchy is very rich in marble and limestone, the former

Salzburg.

obtained from the Untersberg, a remarkable mountain near Salzburg, which has furnished the material for many of the finest buildings of Munich. The area of the duchy is 2767 square miles, the population in 1869, 153,159, estimated population in 1877, 154,584.

The chief town of the duchy, Salzburg (23,000), occupies a site quite unique in its character, and at the same time one of the most charming in Europe. It is situated in the north of the duchy, and stands on both sides of the impetuous glacier torrent of the Salzach, between two enormous blocks of limestone breccia, each about 600 feet high, a few miles distant from the Alps, which describe a semicircle in the south and form a magnificent background for all the scenery in the neighbourhood. The two limestone hills are called respectively the Mönchsberg and the Kapuzinerberg, and the former is surrounded by walls and pierced by a tunnel about 440 feet in length which serves as one of the gates of the

town. The town is not regularly built. The streets are narrow, crooked, and dark; but its well-built, flat-roofed houses, in the construction of which marble is largely employed, and its numerous fountains and monuments, give it a handsome and somewhat of an Italian appearance. Salzburg has been the seat of an archbishop since the close of the eighth century, and its cathedral is regarded as one of the best copies of St. Peter's at Rome. It is the birthplace of Mozart, and the house in which he was born and that in which he resided are still pointed out. In the south of the duchy are the baths of Gastein, rendered celebrated by the fact that several important interviews between the sovereigns of Austria and Prussia and their ministers have taken place there.

The duchy of Salzburg was an archiepiscopal dominion till the secularization of the territory in 1802. It was given to Austria in the Peace of Pressburg in 1805, but afterwards came into the possession of Bavaria, from whose hands it passed definitively, by the terms of the Treaty of Paris, into those of Austria in 1815.

TYROL, or TIROL, and **VORARLBERG** are the two westernmost provinces of the Austrian Empire, lying between Bavaria in the north and Italy in the south, Vorarlberg forming the north-westernmost corner of this territory, bordering on Lake Constance. In magnificence of scenery Tyrol is inferior only to Switzerland, of which it is a continuation, being like it a land of snowfields, glaciers, avalanches, and waterfalls. The Alps enter it from Switzerland in three chains, of which the central (composed of the Tyrol or Œtzthaler Alps and the Hohe Tauern) is the loftiest, and divides the country into North and South Tyrol. The Œtzthaler Alps contain peaks rising to an elevation of upwards of 11,000 feet, and on the borders of Tyrol and Carinthia the Gross Glockner, the highest summit of the Eastern Alps, belonging to the Hohe Tauern, rises to the height of 12,460 feet. In the Œtzthaler Alps is the Brenner Pass, famed for its romantic scenery, and traversed by the main highway to Italy from Germany, while the mountain over which it crosses is pierced by a railway tunnel. There are also innumerable minor valleys, all as well as the principal capable of cultivation. The drainage of North Tyrol is mainly carried to the Danube by the Inn, which is the only navigable river; that of South Tyrol is mostly conveyed to the Adriatic by the Etsch (Adige). The large lakes Garda and Constance are situated on the confines of the Tyrolese territory; the interior lakes are numerous but small. About one-fifth of the surface is practically inaccessible, nearly two-fifths is occupied by forests (18 per cent of which is the property of the state), and the remainder, capable of cultivation, is largely occupied by commons, and mostly in a state of nature. The central chain of the Alps forms a climatic boundary north of which the weather is in a large measure cold and severe, while south of it, especially in the valley of the Etsch, the summer heat is sometimes intolerable. The mean annual temperature north of the chain is from 45°·5 to 47° Fahr., while at Trent and Bozen (Bolzano) it is 54°. The principal grain crops are rye, wheat, barley, oats, and maize, the last being the main product in South Tyrol. Potatoes, buckwheat, flax, hemp, and tobacco are also grown; and in South Tyrol the vine and the mulberry are likewise important objects of cultivation.

The system of cultivation pursued in South Tyrol is peculiar. Only narrow strips of ploughed land are left between the vineyards or mulberry plantations, and these are usually sown with a variety of crops. On the extensive pastures of Tyrol are reared large numbers of live stock, principally cattle (of which there are several excellent races), sheep, and goats. Sheep-rearing, however, is in a comparatively backward condition. The chase, a favourite occupation of the Tyrolese, is no longer so productive as formerly. Mining also, which was at one time an important industry in Northern Tyrol, has now greatly declined, producing only small quantities of copper, iron, lead, zinc, and lignite. Mineral springs, on the other hand, are numerous. In manufactures Vorarlberg occupies a high place, producing large quantities of cottons, muslin, and cambric, besides yarn. The silk industry is carried on in South Tyrol, which has thus in this respect also the character of an Italian territory. Innsbruck and Bozen are the chief seats of industry in the rest of the province. In consequence of the deficiency of the resources of the province a considerable number of the people leave their homes either temporarily or permanently to push their fortunes in foreign countries. In recent years emigration to trans-oceanic lands has been on the increase. The Tyrolese are a simple, manly, loyal, and religious people, not without a share of superstition. About 60 per cent of them are Germans, and about 38 per cent (in the south) Italians, the remainder chiefly of the same race as the inhabitants of the Engadine in Switzerland. The area of Tyrol is 10,321 square miles, population in 1869, 776,283; area of Vorarlberg, 1004 square miles, population in 1869, 109,506; total area, 11,328 square miles, total estimated population in 1877, 898,072.

A Street in Innsbruck.

Innsbruck or Innspruck (19,000), which has been the capital of the Tyrol since 1361, is admirably situated in the broadest and most fertile part of the valley of the Inn, and stands on both sides of that river near its confluence with the Sill. It possesses a university founded in 1677, and also a very interesting

provincial museum called the Ferdinandeum. Trent (German *Trient*, Italian *Trento;* 18,000) is the capital of Italian Tyrol, and is situated on the Etsch. At the time of the famous council (1545–1563) summoned to settle the disorders introduced into the church by the Reformation it was a German town, but it has since become completely Italian both in language and aspect. Trent is the ancient Tridentum, the capital of the Roman province of Rhætia. From the eleventh century till 1803 it was the seat of a bishop exercising secular dominion.

The greater part of Tyrol belonged in ancient times to the Roman province of Rhætia, but the Pusterthal in the south-east belonged to Noricum, and Vorarlberg to Vindelicia. In the feudal ages the territory was divided into a number of lordships, and it first acquired its present name in the thirteenth century, when it was nearly all brought under the rule of the counts of Tyrol. In 1363 it was bequeathed to the house of Austria, but being more than once detached as an appanage it was not finally annexed to the Austrian monarchy till 1665. Vorarlberg formed in the middle ages five counties, which were successively acquired by Austria between 1375 and 1760.

STYRIA (German, *Steiermark*) ranks as a duchy of the Austrian Empire, and lies to the south of the Archduchy of Austria and the west of Hungary. It belongs decidedly to the class of alpine lands, being traversed by three distinct mountain chains, branching partly from the Noric and partly from the Carnian Alps, and attaining in their culminating points a height about 8000 feet above sea-level. Between the mountain-ridges are numerous valleys of greater or less extent, but the only part of the surface which flattens down so as to have somewhat the appearance of a plain, is in the south-east, where the Mur and the Drave are gradually approaching each other, preparatory to their final junction in Hungary. The whole of Styria belongs to the basin of the Danube. There are a great number of small lakes embosomed among the mountains, and generally rich in natural beauty. As regards the products of the soil Upper Styria is decidedly Alpine in character, and there forestry and cattle-rearing are the principal employments of the people, while in Middle and Lower Styria agriculture in the narrower sense of the term is largely carried on along with forestry. About 92 per cent of the whole surface is productive, and of this portion nearly a half is occupied by forests, Styria being the most abundantly wooded of the Austrian crown-lands. Wine is grown throughout Lower Styria, and more partially in Middle Styria. But besides the forests the great source of wealth in Styria is minerals. Among these the most important is iron, which has obtained a world-wide reputation on account of its unsurpassed quality. Less important minerals are lignite, coal, salt (in the Salzkammergut, a portion of which extends into this land), graphite, zinc, lead, silver, &c. The manufacturing industry of the land is mainly occupied with the fabricating of raw iron into various articles, such as nails, axles, ploughshares, wire, parts of machinery, and various cutting instruments, especially scythes. The area of the duchy is 8670 square miles, population in 1869, 1,137,990, estimated population in 1877, 1,184,904, of whom about 64 per cent are Germans, the remainder Slovenians.

The capital of Styria is Gratz (93,000), which stands in the middle of the duchy on the banks of the Mur, in a charming plain surrounded by vine-clad hills and picturesque mountain-chains. The town proper lies mainly on the left bank of the river, and is dominated by the height called the Schlossberg, once crowned by a citadel. The finest suburbs are situated on the right bank. Besides its university, founded in 1586, it possesses a higher class technical school called the Johanneum, founded in 1811, and originally intended to be used only as a museum. The attractions of the town and its environs have made it a favourite place of retirement for Austrians of means. No other town in Styria contains more than 20,000 inhabitants, the next in size being Marburg on the Drave, which has only 13,000.

Styria was occupied by Slovenians or Wends at the close of the sixth century, and hence when annexed to the German Empire was first known as the Wendish or Windish Mark. The name of Styria (Steiermark) originated in the eleventh century, when the territory passed into the hands of the Count of Steyr. After being raised to the rank of a duchy in the same century it was in 1192 united by a treaty of succession with the Austrian lands, with which it came into the possession of the house of Hapsburg in 1276. It was on several occasions detached as an appanage, but was finally united to the Austrian crown in 1619.

CARINTHIA (German, *Kärnthen*) is an Austrian duchy lying between Styria and Carniola. It is extremely mountainous, generally sterile, and one of the most thinly populated provinces of Austria. The drainage all belongs to the basin of the Drave. The lakes are more numerous than in any other part of the Austrian Alps except the Salzkammergut. Both rivers and lakes abound in fish. The arable land is only about 13 per cent of the whole, but there are some fertile valleys, and a considerable extent of rich pasture land. The country does not yield corn enough for the consumption of the inhabitants, who import the deficiency from Hungary. The grains most extensively cultivated are rye and oats. Some wine is produced in Lower Carinthia, but it is of inferior quality. Horned cattle, sheep, and horses are raised in considerable numbers, but the mines of Carinthia are the main sources of its wealth, Styria being the only one of the provinces of Austria in which mining is more extensively developed. The chief minerals are iron, lead, zinc, and lignite. Three-fourths of the whole of the lead produced in Austria is obtained in this province. Various kinds of precious stones are met with. The manufacturing industry of the province is mostly employed in the working of the metals obtained within its boundaries, and above all in the manufacture of fire-arms, which is pursued on a very large scale at Ferlach. Cretinism and goitre constitute a heavy scourge throughout the province except in the valley of the Gail. The principal towns are Klagenfurt (17,000) and Villach (5000), the former possessing a states-house dating from the fourteenth century, and a fine episcopal palace. The area of the province is 4006 square miles, population in 1869, 337,694, estimated population in 1877, 339,035.

Carinthia formed part of the empire of Charles the Great. Under the early

German Empire it was successively in the hands of a long series of royal and ducal families, until in 1335 it passed definitively into the possession of the house of Hapsburg. From 1809 to 1813 part of Carinthia along with Carniola, Görz, and some adjoining tracts, formed a separate state dependent on France under the name of the Illyrian Provinces. In 1816 an administrative division of the Austrian Empire was formed under the name of the Kingdom of Illyria, but in 1849 this territory was subdivided into the present provinces of Carinthia, Carniola, Görz and Gradiska, and Istria.

CARNIOLA (German, *Krain*) is a duchy lying to the south of Carinthia, which for the most part it greatly resembles in its physical features and products. The south-western part of Carniola belongs, however, to a very remarkable region known as the Karst, which extends from the mouth of the Isonzo to the Gulf of Quarnero. This region consists partly of limestone and partly of chalk, the former mainly in Carniola, the latter in Istria, but both chalk and limestone have here the same desolate character. The limestone region consists mainly of high plateaux, varying from 3200 to 4300 feet in height, often quite bare of earth or covered only with a very thin layer of soil. Not a tree, not even a shrub is to be seen; only naked heaps of stones cover the desert surface. Fissures and caverns abound, and in these the streams of the locality often suddenly disappear and from out of them as suddenly reappear. In this district lies the celebrated Lake of Zirknitz, which at times spreads with a very irregular outline over an area of about 6 miles in length and 2 in breadth, and at other times disappears through subterranean caverns, leaving its area to be occupied by rich crops of grass. Of the caverns with which this lake communicates the most celebrated is that of Adelsberg, a little to the west. Here are collected the waters of a number of subterranean streams, and the single stream that leaves the cavern suddenly comes to light a little above Planina, and then again disappears further to the north. The scenery in the chalk region is a little more animated, but even here in some parts not a single house is to be seen for miles, and not a sound to be heard except perhaps the melancholy croak of a wandered magpie or the shriek of a vulture. Here and there, however, are a few small valleys or depressions, called *dolinas*, in which human life has found a refuge, and has covered the surface with meadows, fields, and gardens. Perhaps the most characteristic object of cultivation of Carniola is millet, the flour of which is used to make the national soup of the peasantry. On the slopes of the valleys, where they are sufficiently sheltered from the violence of the *bora*, there are vineyards and mulberry plantations. Agriculture generally is in a very backward condition, mainly in consequence of the extreme subdivision of landed property, which commenced in the time of the French occupation. Of the minerals of the land the most important is mercury, obtained at Idria, and next in importance are iron, copper, and lignite. Iron-foundries and naileries are the chief manufacturing establishments. The chief town is Laibach (25,000), situated on the river of the same name not far from its junction with the Save. Its importance is mainly due to its trade. After forming part of the Duchy of Friuli, founded at the close of the sixth century, Carniola was subject for a time

to margraves of its own, whose line became extinct in 1245. After various changes it passed mainly into the possession of the counts of Tyrol, and in 1335, on the extinction of the male line of that house, part of it was acquired by the house of Hapsburg, which in 1363 obtained the remainder of the Tyrolian possessions. The area of Carniola is 3856 square miles, population in 1869, 466,334, estimated population in 1877, 470,965.

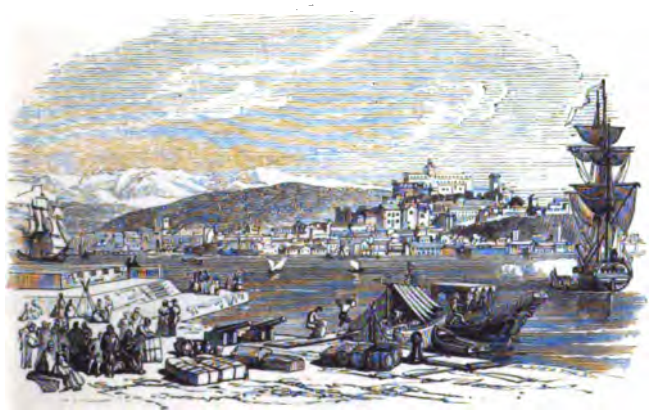
The county of **GORZ AND GRADISKA** and the margraviate of **ISTRIA** with the town and territory of **TRIESTE** occupy the southern portion of the area belonging to the former Kingdom of Illyria, between Carniola and the sea, Istria including also most of the islands in the Gulf of Quarnero. The surface of this tract belongs in the north to the Karst proper (described in the previous section), and elsewhere bears in many parts much resemblance to the Karst. The north of Istria is mountainous, the Tschitscher Boden having heights rising to above 4000 feet. The principal objects of cultivation in the provinces are maize and millet. Much rice is grown in the valley of the Isonzo, where there are also many mulberry plantations. The vine is widely distributed, and in the maritime districts the olive, almond, and fig-tree also thrive. The fisheries of tunnies and sardines are important. There are no metals in the provinces, and the principal minerals are alum, vitriol, lignite, and a variety of excellent building-stones. The population is very diverse. Of the Slavs, who form the majority of the population, the most numerous section is the Slovenians, after which come Croats and Servians in Istria and the adjacent isles. The Italians are nearly as numerous as the Slovenians, and there is also a considerable number of Friulians, a mixed race of Italians and Slavs, on the right bank of the Isonzo. Germans, Greeks, Jews, and Roumanians make up the rest of the population. Area of Görz and Gradiska 1140 square miles, pop. in 1869 204,076; area of Trieste and district 36 square miles, pop. in 1869, 126,633; area of Istria 1908 square miles, pop. in 1869, 254,905; total area 3084 square miles, total estimated pop. in 1877, 628,980.

Görz (Italian, *Gorizia;* 19,000), the capital of the crownland of Görz and Gradiska, is delightfully situated on the left bank of the Isonzo in a plain covered with vineyards, between the Karst and the wooded plateau of Tarnova. The seat of government of Istria is Parenzo (6000), on the west coast, but the most important town in this province is Pola (24 000), near the south-western extremity. It is the ancient *Pietas Julia*, of which it possesses some fine remains. Anciently it was the principal station of the Roman fleet, and at the present day it is the great arsenal and naval station of the Austrian Empire.

The county of Görz, after forming part of the ancient Roman province of Illyricum, was included in the Duchy of Friuli, and in the eleventh century had counts of its own, on the extinction of whose line it fell to Austria in 1500. Gradiska was conquered by the Imperialists from the Venetians in 1511, was made an imperial county by Ferdinand III. in 1641, and fell to Austria in 1717, when the family of counts became extinct. The two counties were united to form a single crownland on the occasion of the division of the Illyrian kingdom in 1849. Istria from the thirteenth till near the close of the eighteenth

century was divided into two sections, the one belonging to Venice, and the other, which intersected the first from east to west, to the county of Görz and afterwards with it to Austria. In 1797, after the treaty of Campo Formio, Venetian Istria was likewise occupied by Austria, which was allowed to retain this territory at the close of the Napoleonic era.

The free-town of **Trieste**, the principal port of Austria, lies on the bay at the north-west of Istria a little to the east of the mouths of the Isonzo. It consists of an ancient part commanded by the citadel, a new town separated from the old by the Corso, a still more modern quarter extending along the harbour on the south-west and partly built on land recovered at great expense from the sea, and a suburb which ascends the heights behind the town and which is separated from the rest of the town by a canal about 75 feet broad and 15 feet deep. Though made a free port in 1719 Trieste owes its commercial prosperity chiefly to the foundation in 1833 of the association known as the Austrian Lloyd's, which, besides serving, like the London Lloyd's, as a great agency for marine insurance and focus of shipping intelligence, has the management of a large fleet of steam-packets sailing to all parts of the Adriatic and the Levant. The population of the town, which numbered only about 6000 at the beginning of last century, and had risen to only about 25,000 near the close of the same century, has trebled itself within the last fifty years. The tonnage annually entered and cleared at the port amounts to about two millions, and the value of the commerce to about £40,000,000. Trieste, the ancient Tergeste, after belonging in turn to the Roman, the Byzantine, and the Frankish Empire, despairing of being able to maintain its independence against the hostility of Vienna, voluntarily placed itself under the protection of the archdukes of Austria in 1382. The population (chiefly Italians) of the town itself without suburbs was in 1880, 72,000; including suburbs, 133,000.



Trieste.

DALMATIA ranks as a kingdom among the Austrian crownlands, and is the most southern portion of the Austrian dominions. It consists of a long narrow triangular tract of mountainous country, and a number of large islands along the north-east coast of the Adriatic Sea. The surface is much varied; the Dinaric Alps, a range of limestone mountains, separate the north portion from Turkey, and another range runs nearly parallel with the coast, sterile and

destitute of soil. Each of these contains peaks about 6000 feet in height. The inland parts of Dalmatia have much resemblance to the Karst region. They are diversified by undulatory ground, hills, and high mountains, many of the latter having the same rugged barren aspect as those of the coast, while others, again, are partially covered with low wood. There are also several extensive and unwholesome marshes in various parts of the country, causing deadly fevers in hot weather. Most of the islands are mountainous, and present the same general aspect as continental Dalmatia. The waters of many of the Dalmatian streams have a petrifying quality, and cover the rocks over which they flow with a coarse stalagmitic deposit. The river scenery is in some parts singularly wild and picturesque. The shores are covered with a richer marine vegetation than those of any other part of Europe. The area of Dalmatia is 4953 square miles; pop. in 1869, 458,561; estimated pop. in 1877, 471,180.

Spalatro.

Agriculture is in an extremely backward state; but it is said that the peasantry require only proper instructions in directing their labour to remedy this evil. At present the greatest proportion of available land (58 per cent of the surface) is in pasture, the next in wood, and the remainder consists of arable land, olive plantations, and vineyards. There are also numerous orchards producing apples, pears, plums, almonds, pistachios, peaches, apricots, lemons, oranges, carobs, and pomegranates. The Dalmatian wines are strong and full-bodied; but most of them have the fault of being sweet, owing to the grapes remaining too long upon the vines before they are gathered. Timber is scarce, and even firewood far from plentiful. Comparatively few sheep or cattle are reared; horses are rare and of very diminutive size. Among wild animals there are, besides the fox, which is abundant, the jackal and the brown bear. Fish, especially the sardine and tunny, abound on the coast; salmon-trout, often of extraordinary size, are plentiful in some of the rivers. Minerals are scanty. There are productive quarries of limestone and marble, but the most important mineral is that obtained from the sea, namely, salt. Dalmatia has hardly any manufactures worthy of the name. There is a considerable manufacture of liqueurs at Zara, the principal of which is the far-famed Maraschino. The Dalmatians of the coast and the principal families in the large towns of the interior are mostly of Venetian extraction, and Italian is spoken in all the

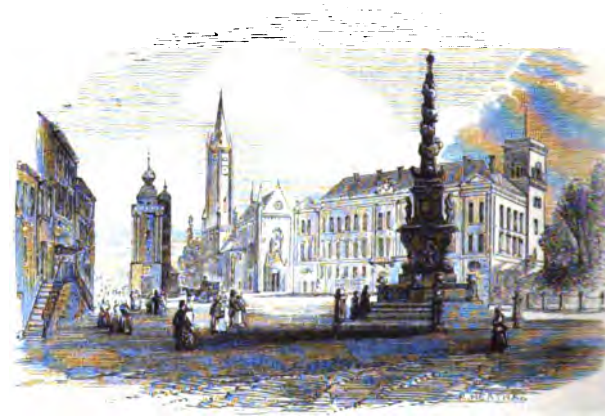
seaports; but the language of the country is a dialect of the Slavonic, which alone is used by the peasants in the interior. The Dalmatians are a tall, muscular, and vigorous race, and extremely hospitable, but lazy, vindictive, and dissipated.

Dalmatia has several towns of importance, all situated on the coast. Zara (8000, with suburbs 21,000), in the north, is the capital, and possesses a safe and commodious harbour defended by a citadel. Its fine cathedral dates from the beginning of the thirteenth century. Sebenico (15,000), further south, is also distinguished by the possession of a fine cathedral (built between 1443 and 1536). Spalatro (18,000), still further south, owes its name to the vast and sumptuous palace (*palatium*), with a circumference of about 2 miles, erected here by the emperor Diocletian, and still in large part preserved along with several other ancient remains. Two of the walls of this palace form part of the fortifications. Furthest south lies Ragusa (9000), presenting, with its double line of old walls flanked by numerous round towers partly washed by the sea, an excellent example of an Italian fortress of the middle ages. From the thirteenth century onwards it formed a mercantile republic aristocratically governed like that of Venice. In the seventh century Dalmatia was taken by the Slavs, who founded there a kingdom which lasted till 1050, when the greater part of it was united to Hungary, and the remainder passed under the protection of Venice. In 1797 the Venetian portion, along with the city of Venice, was ceded to Austria, by which power it was retained in the Treaty of Vienna in 1814.

BOHEMIA (in German, *Böhmen*) ranks as a kingdom among the Austrian provinces, and lies to the north of the Archduchy of Austria. It is an undulating country inclosed by a frame of mountains, the highest of which are the Riesengebirge on the north-east, in which some peaks rise to above 5000 feet in height, while those on the south-east scarcely deserve the name of mountains, but form only a range of low hills which slope gradually down on the one side to Bohemia, on the other to Moravia. The Erzgebirge, on the opposite or north-west side of the country, have quite the contrary character, being extremely precipitous. The south-west frontier is formed by the Böhmerwald, the highest peaks of which reach about 4500 feet. The whole country belongs to the basin of the Elbe, which receives within it the important tributary of the Moldau, belonging entirely to Bohemia. Area of the kingdom, 20,063 square miles; pop. in 1869, 5,140,544; estimated pop. in 1877, 5,399,028.

The arable land of Bohemia comprises 48 per cent of the whole surface, the meadows and pastures cover about 20 per cent, and the forests about 29 per cent, leaving only about 3 per cent waste. The land has been from time immemorial mainly in the hands of large proprietors, each possessing on an average not less than 10,000 acres of arable and from 6000 to 10,000 acres of wood land. Agriculture is carried on on a large scale and by the most improved methods. All sorts of grain, flax, hops, and a great variety of fruits are exported. The hops grown round Saatz on the Eger are the best in Europe. Poultry is also largely exported. Game of all sorts abounds in the woods, and pheasants are particularly numerous. Great quantities of fish are obtained from ten thousand

small lakes which are still scattered over the kingdom, but which were formerly much more numerous, their total area having been reduced by draining to a fourth of what it was in 1820. The mineral wealth of Bohemia is more varied than in any other part of the Austrian Empire. There are vast beds of coal near Pilsen and Kladno, lignite in the basin of the Eger; graphite is obtained near Budweis, tin in the mountains of Tepl, argentiferous lead at Pribram or Przibram, iron in considerable quantities at various places, and besides these copper, cobalt, arsenic, calamine, plumbago, &c., as well as garnets, amethysts, and other precious stones. There are also numerous mineral springs (in the volcanic region in the valley of the Eger). By far the most celebrated are the thermal springs of Teplitz, with a temperature varying in the different springs from 60° to 120° Fahr. The manufactures of Bohemia are of the highest importance, amounting to about one-sixth of the whole production of the Austrian monarchy. Among the branches of manufacture the first in the order of magnitude is the textile industry, producing cottons, linens, and woollens. Cotton yarns and fabrics are chiefly manufactured in the extreme west, between Eger and Asch, and in the north-east, between Reichenberg and Josephstadt. In the production of linens Bohemia surpasses all other parts of the monarchy. The chief seats of this branch are in the extreme north, in the neighbourhood of Rumburg. Great quantities of woollen yarn are produced, and are not only consumed in the country, but exported to Italy, the Levant, and even North America. Metallurgy ranks next in importance after the textile industry, and is chiefly occupied with the production of articles in iron, copper, and brass. The chief seat of the iron industry is in the west, in the district between Pilsen, Przibram, and Pürglitz. The manufacture of glass is the third in order of magnitude, and is a very old industry in Bohemia. The chief glass-grinding establishments are in the north in and round Gablonz or Jablonec, near Reichenberg, and here also the polishing of precious stones is an important business. The export of the commoner kinds of glass from Bohemia has been diminishing in recent years, but that of the finer kinds is steadily increasing, and the quality of the latter is surpassed only in some special varieties by that of English manufacture. Among the other branches of Bohemian industry those most highly developed are the manufacture of earthen-



The Schlossplatz (Castle Square), Teplitz.

ware, beetroot-sugar, chemical products, leather, and paper, besides distilling and brewing, the breweries of Bohemia rivalling those of Bavaria and Lower Austria. The nucleus of the population of Bohemia consists of the Czechs, who inhabit the middle of the land, and speak a Slavonic language closely allied to Polish. They are surrounded on all sides by Germans. On the side of Saxony the domain of the Germans is steadily increasing in consequence of an immigration that has been going on since the twelfth century. In the south Germans were settled in some districts even before the arrival of the Slavs, that is, before the end of the fifth century. The Czechs number in all about 61 per cent of the population, the Germans about 37 per cent.

The Rathhaus and Teinkirche, Prague.

The capital of Bohemia is Prague (in Czech, *Praha;* 156,000, or including suburbs 235,000), the third city in the whole empire. It is situated in the heart of the country on both banks of the Moldau, which here attains a considerable breadth and incloses several islands, of which the two principal are within the town itself, and are occupied by bathing establishments and gardens. On the right bank of the river is the old town of Prague surrounded by the new town, beyond which again to the north-east and east are the industrial suburbs of Carolinenthal, Zizkow, and New Prague. On the left bank are the quarters known as the Kleinseite built on the slope of a hill, and the Hradschin crowning the summit of a hill and containing a large number of the residences of the nobility and the higher officials of state. This portion of the city is surrounded by a wall, beyond which on the south is the industrial suburb of Smichow. In the immediate neighbourhood of the Hradschin is the White Mountain, 1200 feet high, celebrated in history as the scene of the battle in which the Protestants of Bohemia suffered a decisive defeat early in the Thirty Years' War (Nov. 8, 1620). The university of Prague was the first established in the old German Empire, having been founded by the emperor Charles IV. in 1348 on the model of the university of Paris. At the beginning of the fifteenth century it is said to have been attended by 20,000 students. Its library, though small, is very rich in Slavonic literature. The city of Prague is said to have been founded in the eighth century, but did not attain to a position of great importance till the

middle of the fourteenth, when it was greatly favoured by Charles IV., who founded the new town and, as just mentioned, the university. The town suffered greatly during the Thirty Years' War, which commenced here on the 23d of May, 1618. Reichenberg (28,000) in the north-east is only notable as a seat of industry. Pilsen (38,000), at the confluence of the Mies, Radbusa, and Bradlenka, which here unite to form the Beraun, is also an important seat of industry, and is greatly favoured in this respect by having in its immediate vicinity rich mines of coal, iron, and alum. Eger (17,000), in the west, in a fertile plain at the foot of the last spurs of the Fichtelgebirge, is an old imperial free-town, and is celebrated as the scene of the murder of Wallenstein in 1634.

Bohemia was recognized as a kingdom belonging to the German Empire in 1092, and the Bohemian kings were recognized as among the seven electors of the empire. It was successively united and disunited with Hungary, Silesia, and Moravia according to the course of wars and alliances, and in 1526 it passed to the House of Hapsburg through the election of Ferdinand of Austria to the royal dignity.

MORAVIA (in German, *Mähren*) is a province bearing the title of a margraviate, and lying to the east of Bohemia. It derives its name from its principal river the Morava or March, a tributary of the Danube. The general slope is towards the south, where it sinks down to a plain only about 450 feet above sea-level. The highest elevations are in the Sudetes in the north, where there are several peaks above 4600 feet in height. As respects productions the distribution of the surface in Moravia among arable land, pastures, forests, and vineyards is nearly the same as in Bohemia, but the proportion of arable land is rather greater in the former than in the latter (greater indeed than in any other province of the empire, being more than half of the whole surface), that of forests and pastures rather less. The soil is rich and well cultivated, the climate mild, except in the mountainous regions in the north. The agricultural products are similar to those of Bohemia. Wine is grown chiefly on the hills extending from Znaim to the March. Sugar-beet is grown in various parts of the province, and is becoming a more important crop every year. The mineral products are confined to coal, lignite, and iron, with a little graphite and alum. Manufacturing industry stands on a very high level. In variety of products it does not equal that of Bohemia, but the total value of manufactured articles is proportionately greater than in the adjoining province. The most important of the manufactures are woollen goods and beetroot-sugar, and the next in importance, linen and cotton goods, articles in iron, leather, earthenware, glass, and paper. Among the inhabitants the Slavs, who are divided into various tribes, form about 70 per cent of the whole, the Germans about 27·6 per cent. Among the various Slavonic tribes there prevails a great variety of manners and costumes, which are especially striking among the rich peasantry inhabiting the fertile district lying north of the Hanna and extending as far as Olmütz and Leipnik. The area of the province is 1991 square miles; its population in 1869, 2,017,274; estimated pop. in 1877, 2,091,802.

The capital of Moravia is Brünn (79,000), at the confluence of the Schwarz-

awa and Zwittawa. Its importance is principally due to its woollen factories and other industrial establishments. Its citadel, which overlooks the town from a height of upwards of 300 feet, was formerly a state-prison, the celebrated Spielberg, in which Silvio Pellico was confined from 1822 to 1830. In the neighbourhood are some interesting caverns, and a short distance to the east is the scene of the battle of Austerlitz, in which the Austrian army was completely defeated by Napoleon in 1805. Olmütz (15,000, not including its numerous garrison) is one of the strongest places in the empire. It is situated on the March in a low plain capable of being inundated at pleasure so as to isolate the fortress in its midst. Since 1777 it has been the see of a rich archbishopric.

Moravia was first settled by Slavs in the sixth century, and it afterwards formed the nucleus of a kingdom which embraced all the adjacent countries in the east. In the beginning of the tenth century the eastern portion of this dominion was overrun by the Magyars, and the western at the same time lost its independence and fell first under the power of the Bohemians and then of the Poles. About 1029 it was recovered from the Poles by the Duke of Bohemia, and in 1197 it was erected into a separate margraviate under the feudal superiority of Bohemia. With this state it passed to the house of Hapsburg in 1526.

AUSTRIAN SILESIA, ranking as a duchy, is a small province on the north-east of Moravia formed out of the principalities and lordships left to Austria in the peace of Berlin of the 28th of July, 1742, by which the rest of the large province of Silesia was ceded to Prussia. It is divided into two sections by a triangular projection of Moravia lying between the Oder and the Ostrawitza. The western section incloses the districts of Troppau and Jägerndorf belonging to the province of Liechtenstein. Both sections are mountainous, the western occupied by the northern slopes and spurs of the Sudetes, and the eastern by those of the Bieskid mountains. Oats, rye, barley, potatoes, and beet-root are cultivated, and in the valley of the Oder a considerable quantity of flax. In the production of coal (which is of excellent quality) this province yields only to Bohemia, and among other minerals iron, lead, and copper, as well as marble and slate, are important. Manufacturing industry is very brisk, producing chiefly woollen goods, but also cottons and linens, spirits, sugar, wrought-iron, and copper. More than half the population are Germans, but these are mixed in the east with Poles (Water-Polaks), and in the west with Czechs or Goralians, the former making up 29 per cent and the latter 19 per cent of the whole. The chief town in the western section, and the capital of the province, is Troppau (19,000, exclusive of the suburbs), the seat of a varied industry and an active trade. German is the language of the town itself, Polish that of the suburbs. The chief town in the eastern section, Teschen (13,000), which is also half German and half Polish. It was formerly the capital of an independent duchy. A treaty of peace between Austria and Prussia was concluded here in 1779.

GALICIA (in German, *Galizien;* in Polish, *Halicz*), ranking as a kingdom among the provinces of Austria, occupies an extensive region in the north-east of

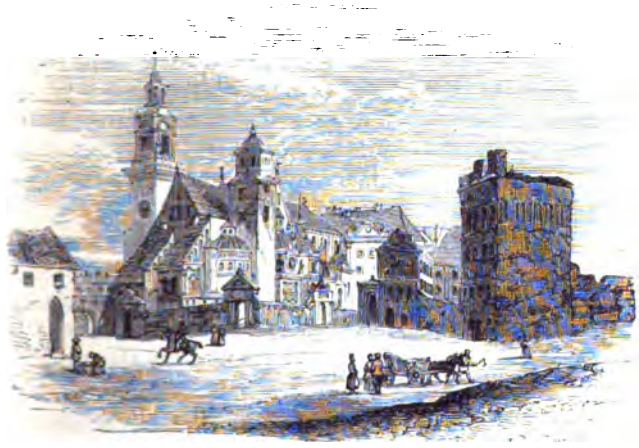
the empire. Its area is 30,301 square miles; its population in 1869, 5,444,689; its estimated population in 1877, 6,088,509.

The great physical features of the country are, in a manner, determined by the Carpathians, which form a long and irregular curve on the south. The north side of the chain is more abrupt than the south, and the branches which proceed from it stretch for a considerable distance into Galicia. Farther to the north the hills subside rapidly, and finally merge into vast plains. Galicia is partly traversed by the great watershed which divides the whole continent of Europe into great basins. The chief river on the north and west of this watershed is the Vistula. The chief river on the other side of the watershed is the Dniester. The only part of the surface belonging to the basin of the Danube is a small portion in the south-east drained by the Pruth. The climate is severe, particularly in the south, where more than one of the Carpathian summits are beyond the limit of perpetual snow.

The soil is much diversified. In the more mountainous districts it often forms a thin covering on bleak and almost barren rocks, where scanty pasture only is obtained. In other parts of the same district both the quality and the depth of the soil improve, the pastures become excellent, and many magnificent forests occur. In parts of the north and west the soil is of a sandy texture, and the crops are very indifferent; but in general, where the elevation is small the ground, more especially where resting on a substratum of limestone, is of great fertility. Three-fifths of the land is in the possession of large proprietors holding each from 1000 to 20,000 acres. Of the remainder a large proportion is parcelled out into small plots, the produce of which is not sufficient to support their owners, who accordingly have to hire themselves out as agricultural labourers on larger properties. The local tribunals greatly favour the subdivision of property. Agriculture is on the whole in a backward condition. The proportion of arable land is about 46 per cent, that of meadows, pastures, and garden land about 25 per cent, that of forests about the same. Besides all kinds of cereals, including maize, and the usual green crops, the land produces flax and hemp, beet-root, hops, and tobacco. The domestic animals include great numbers of horned cattle, generally of a superior description, and a fine hardy breed of horses, well adapted for cavalry. Sheep are in general very much neglected; but goats, swine, and poultry abound. The rearing of bees is much attended to, and produces great quantities of wax and honey. The forests furnish splendid specimens of pine, oak, and alder, which are exported for shipbuilding and other purposes. Bears and wolves are frequently found in the forests; and all the lesser kinds of game are abundant. The principal minerals are rock-salt and coal, the former obtained in the west at Wieliczka and Bochnia, and in the east at Kaluaz, the latter in the district round Cracow. Other minerals of importance are iron, in numerous parts of the central Carpathian chain, lignite, sulphur, and zinc, besides marble and alabaster. Manufactures have not made much progress. The spinning and weaving of flax and hemp prevail to a considerable extent on the confines of Silesia. Distilleries exist in every quarter. The population is generally of Slavonian origin, and consists of two principal branches—Polish in

the west and Russniaks or Ruthenians in the east. The number of the Jews is considerable. The Karaite or non-Talmudic Jews in the east, although few in number, are yet remarkable on account of some peculiarities of belief and observance which they maintain. The eastern Galicians bake their bread of maize, the inhabitants of the mountains of oats, and those of the plains of rye.

The capital of Galicia, Lemberg (110,000), in the eastern section of the kingdom, is situated on the Peltew, an affluent of the Bug, and surrounded by considerable hills, one of which is crowned by the citadel. The town was founded in 1259, but has attained its present importance only in recent times, having quadrupled its population since 1772. It is now not only the seat of government but the principal centre of commerce and industry in Austrian Poland. Its university dates from 1784. Cracow (spelled in German *Krakau;* 61,000), situated on the left bank of the Vistula near the northern frontier of Western Galicia, is the second town in the kingdom, and was at one time a place of greater importance than it is now. From 1320 to 1587 it was the capital of Poland, and till 1764 it was the place of coronation of the Polish kings. In the seventeenth century it had a population of 100,000, which after the first partition of Poland was reduced to 16,000. The university of Cracow was founded by Casimir the Great in 1364. Brody (20,000), formerly Lubicz, about 60 miles east by north of Lemberg, near the frontier, is the third town in size in Galicia, and carries on a large trade in the products of the Russian and Austrian empires, a great amount of business being done at its periodical fairs. Two-thirds of its inhabitants are Jews.



The Cathedral, Cracow.

The nucleus of the modern Kingdom of Galicia was formed by the Duchies of Halicz and Vladimir, corresponding to Eastern Galicia, established in the twelfth century. About the end of the fourteenth century these were united to Poland, and in the first partition of that kingdom in 1772 were assigned to Austria under the name of the Kingdom of Galicia and Lodomeria. In the second partition of Poland in 1795 Western Galicia was required, but from 1809 to 1813 this territory formed part of the Grand-duchy of Warsaw founded by Napoleon, and from 1815 to 1846 the town and district of Cracow formed a separate grand-duchy founded by the congress of Vienna, and placed under

the protection of Austria, Russia, and Prussia. In the latter year it was once more assigned to the first-mentioned power, and in 1849 made a component part of the Kingdom of Galicia.

BUKOWINA, ranking as a duchy, lies to the south-east of Galicia, and is partly mountainous partly level. The southern portion is covered by the Carpathians, the general slope of which is towards the south-east. More than a fourth of the surface is devoted to pasture and about the same amount is under the plough, but the great wealth of the province consists in its forests, which cover about 48 per cent of the whole surface. The best soils are those extending between the Dniester and the Pruth along the frontiers of Roumania. The principal cereal in cultivation is maize. The horses of the Bukowina are held in high esteem, and other kinds of live stock are also reared in abundance. The principal products of the forests are firs and pines in the mountains, and beeches, maples, alders, and lindens in the plains. The beeches are so abundant as to have given the land its name, which is a Slavonic word meaning "land of beeches." The mineral wealth of the country lies in the south-western corner, and comprises iron, copper, and salt, till recently also silver. The area of the duchy is 4036 square miles; pop. in 1869, 513,404; estimated pop. in 1877, 553,949.

As regards its population the Bukowina may be described as a new country, the number of its inhabitants having increased from seven to eight fold since 1775, when they amounted to only about 75,000. The growth of this colony, as it may be called, is in a large measure due to the encouragement given to it by the emperor Joseph II., who showed great anxiety to develop the abundant but hitherto scarcely utilized resources of the land. Immigrations took place from all sides, and the population is consequently, both as to race and religion, as motley a one as is to be found in any other part of the globe. At the census of 1869 about two-fifths of the population were Ruthenians (in the west), about the same proportion Roumanians (in the east), and the remaining fifth was composed of Germans, Jews, Poles, Magyars, Czechs, and Armenians, the last of whom have been settled in the land as merchants since the eleventh century. Although forming no more than 8 per cent of the whole population the Germans, in consequence of their superior education, have the whole direction of the government of the province in their hands, and to a large extent also that of the general business. The majority of the inhabitants belong to the Oriental Greek church, but upwards of a fifth are divided between the Roman Catholics, Protestants, United Greek Catholics, &c.

The capital of the duchy is Czernowitz (46,000) situated on the slopes of a semicircle of hills on the right bank of the Pruth in the north of the province. It is the principal seat of trade, and among other industries has manufactures of machinery and bronzes. It is the seat of a German university founded in 1875, and also of one of the three highest dignitaries of the Non-united Greek church.

The Bukowina belonged originally to Transylvania, and in 1482 was conquered by the Prince of Moldavia. In 1769 it was seized by the Russians in a war with Turkey (to which power Moldavia was then tributary), in 1774 was

restored by the Russians, but was occupied in the same year by the Austrians, to whom it was formally ceded by the Turks in 1776. In 1786 it was placed under the administration of the Kingdom of Galicia, though still allowed to retain its local constitution, and in 1849 it was made a separate crownland.

TRANSLEITHAN PROVINCES.

THE KINGDOM OF HUNGARY includes besides Hungary proper the Grand-principality of Transylvania, and extends over the whole area lying between the Carpathians on the north and the Drave, the Danube, and the Transylvanian Alps in the south. The area included within these limits is 108,279 square miles; the population in 1869, 13,561,245; estimated pop. in 1876, 13,724,442.

Hungary Proper (in German, *Ungarn;* in Hungarian, *Magyar-Ország*, Land of the Magyars) may be considered as a large basin surrounded by mountains, which on all sides except the south lie partly within its boundaries. The mountains of Hungary belong to the two grand European chains the Alps and the Carpathians. The latter in Hungary form the principal chain, sweeping in a great curve from north-west to south-east, and taking in their course various names, as the White Mountains or Little Carpathians in the north-west between Hungary and Moravia, the Tatra in the north, the Bieskid Mountains further to the east, &c. The highest range is the Tatra, which contain the Gerlsdorf peak, rising to the height of 8705 feet, and which on the side of Hungary descend abruptly, presenting mountain scenery of a more terrific character than any other chains in Europe except those of Southern Spain. They do not, however, descend at once to the level of the Hungarian plain, for both in the north and east the surface of Hungary climbs towards the mountains in a series of terraces. The mountain and hill country of Western Hungary belong to the spurs of the Noric and Karnian Alps, which at two points come into close contiguity with spurs of the Carpathians on the opposite side of the Danube, namely, at Hainburg and Theben in the extreme west, and at Gran and Waitzen further east. The Alpine spur terminating near the last-mentioned points is known as the Bakonywald, a range upwards of two thousand feet in height running from south-west to north-east, and clothed with dense forests of oak, beech, and other trees. In the south-east of Hungary the Danube forces itself through a comparatively narrow fissure, historically famous as the Iron Gate, between the mountains of Transylvania and the northern spurs of the Balkans. The area of Hungary proper is 82,827 square miles; its population in 1869, 11,459,518.

The drainage of Hungary belongs entirely to the basin of the Danube. The total length of the navigation afforded by the rivers of Hungary is 2230 miles, or about one mile of river navigation for every 49 square miles of surface. Serious hinderances to navigation are presented by the rapids of the Iron Gate and also at the part of the Danube below Pressburg, but attention is now being directed to the removal of these hinderances, especially the latter. The principal lakes of Hungary are Lake Balaton (in German, the *Plattensee*), south of the

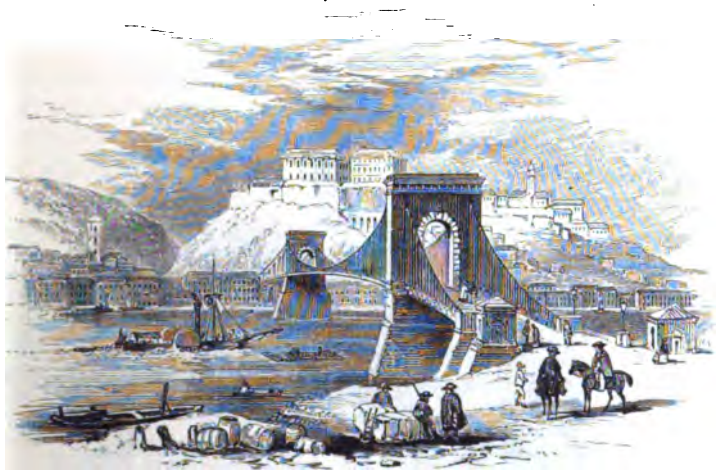
Bakonywald, 50 miles long by about 10 broad; and the Neusiedler See (in Hungarian, *Fertö Tava*), near the frontier of Lower Austria, an extensive but very shallow lake, and hence liable to be almost entirely dried up in dry summers. In the Carpathians are several smaller lakes between 4000 and 5000 feet above the sea. Along the course both of the Danube and the Theiss extensive marshes occur, the total area of which has been estimated at upwards of 2000 square miles. Within the present century enough marshland has been drained to furnish subsistence for 500,000 inhabitants.

Of the whole area of the Kingdom of Hungary 92 per cent is productive, and of this portion 37 per cent is arable land, about 31 per cent in meadows, pastures, and garden land, about the same proportion in wood, and 1·3 per cent in vineyards. Hungary is pre-eminently a grain-growing country, producing especially wheat of the finest quality in such abundance as to leave, after satisfying the internal demand, about a third of the whole produce for export. Besides wheat nearly all other kinds of grain, green crops, kitchen vegetables, and garden plants of every description, melons (which are cultivated in open fields), fruits (particularly plums for the sake of the spirit called *slivovitza* prepared from them), Turkish pepper, tobacco, poppies, flax, hemp, hops, safflower, madder, and other dye-plants, rape, &c., in addition to wine are among the products of Hungary. Next to France Hungary is the chief wine-producing country of Europe, both as regards the quantity and the variety of the product. Both fruits and wine are principally grown in the south-west, which is almost an uninterrupted succession of orchards and vineyards; but the best sort of wine, the celebrated Tokay, is grown in the north, in the county of Zemplin in the district called Hegyallya, lying between the Bodrog and the Hernad. Horses, cattle, sheep, hogs, game (in the north bears), poultry, fish (amongst which the sturgeon and a kind of salmon, *Salmo dantex*, are the principal), bees, and silkworms are among the productions of the animal kingdom.

In respect of its mineral wealth Hungary is one of the richest countries in Europe. It possesses inexhaustible deposits of salt, coal, and iron ore, and remarkably rich veins of gold, silver, and copper, which were already known in ancient times. Among the minerals of less importance are lignite, lead, antimony, sulphur, alum, &c. But in spite of the extent of its resources the mineral production of Hungary is on the whole diminishing. Hungary, including Transylvania, used to yield nearly a half of all the gold annually obtained in Europe. Its principal localities are Kremnitz, Schemnitz, and other places in the north, and Nagy Banya on the Transylvanian frontiers. Iron ores are found principally in the counties of Zips, Gömör, Torna, and Abauj. The salt-mines are principally in the county of Marmaros in the north-east of the kingdom, and are worked as a state monopoly. Marble and various other kinds of building and decorative stone are obtained in different parts of the kingdom, and there is also a remarkable wealth of precious stones, the principal of which is the opal, nearly all the best specimens of which come from Hungary, from Kaschau in the north. Chalcedonies, garnets, amethysts, jacinths, are among the others obtained in this land. The manufactures of Hungary are at a very low stage, and are

confined to the supplying of the most ordinary requirements. Trade is almost exclusively in the hands of the Germans, Greeks, and Jews.

The diversity of race and religion in the Kingdom of Hungary (including Transylvania) is as great as in the empire generally. The Magyars, who are the dominant race, are located for the most part compactly in the centre of Hungary proper, where they form about half the whole population. In Transylvania they are called Szekler, and inhabit the most elevated regions of the province. Among them Roman Catholicism counts the greatest number of adherents, but Protestants are also numerous. In many respects they resemble the Turks, who belong to the same great family of mankind. Most of the Hungarian nobles are Magyars; and it is by this section of the population that the constitutional form



Buda, with the Suspension-bridge across the Danube.

of government and municipal institutions have been mainly, if not wholly, upheld. The Slovaks are next in numbers to the Magyars, and inhabit the north-west. They are similar in race, customs, and language to the adjacent Moravians, to whose extensive empire they belonged before the Magyar conquest. Like the Magyars they are divided between Roman Catholicism and Protestantism, the Roman Catholics being among them also the more numerous. Next in number are the Germans and Roumanians. The Germans appear, in the first instance, to have immigrated into the country during or before the seventh century, subsequently to which many successive immigrations took place, especially under Geysa, king of Hungary, who ascended the throne A.D. 1141, and who established large numbers of German colonists from Franconia, Thuringia, and Alsace in several of the northern counties and in Transylvania (where they are called Saxons). They speedily became dispersed through the towns and detached settlements over all Hungary and Transylvania; and early in the thirteenth century Pesth was described as a "large and rich German town." Considerable German immigrations took place also at subsequent periods, especially at the end of the

seventeenth and the beginning of the eighteenth century. The Roumanians occupy a tolerably wide tract of country on both sides of the west and north boundaries of Transylvania, in which province they form the largest element of the population. They chiefly profess the Greek form of religion. They are far behind the Slovaks, and, indeed, nearly all the other nations of Hungary, in education and civilization. The Ruthenians or Russniaks dwell beneath the North and North-eastern Carpathians, and are nearly all of the Greek United Church. Servians are found in considerable numbers in the south-east and Croats in the south-west, and among other nationalities represented in Hungary are Albanians, Armenians, Bulgarians, Greeks, Italians, Zingari or Macedonian Wallachians, and Gypsies.

The capital of the Kingdom of Hungary is Buda-Pesth, which is properly speaking composed of two towns situated in the heart of the country on opposite banks of the Danube, which here has a breadth at its narrowest part of about thirteen hundred feet. The town situated on the right bank is that to which the name of Buda (in German, *Ofen*) strictly belongs, that on the left bank is the town of Pesth. The two are connected by a magnificent suspension-bridge erected in 1849, as well as by two railway bridges. Buda, partly built on a number of eminences above 400 feet high, one of which is crowned by the citadel, is a town of Roman origin, in which the Hungarians began to establish themselves in the middle of the fourteenth century. After the conquest of Hungary by the Turks it was the residence of the Turkish pashas from 1541 to 1686, and in 1784 it was made the seat of government of Hungary by the Austrians. Pesth, occupying a plain and fronting the Danube with a noble line of quays overlooked by handsome modern edifices, is a town of much more recent growth. Having been almost entirely destroyed by the Mongols in the thirteenth century and by the Turks in the sixteenth, it contained about a hundred years ago only 12,000 of a population, almost entirely German; but since that date its growth has been marvellous. At the time of the revolutionary movement of 1848 it had a population of about 100,000, and at the census of 1869 the population was double that. The population of Buda at the same date was 54,000, and that

The Town-hall Square, Pesth.

of the two towns with the suburbs, in 1880, 370,000. The university, transferred here in 1680 from Tyrnau in the north-west of Hungary, was originally founded in 1465. The old capital of Hungary was Pressburg (47,000), on the left bank of the Danube a little way below its entry into Hungary, and only about 32 miles from Vienna. It is a quiet city surrounded by vine-clad hills, and possesses an old cathedral and the ruins of a castle destroyed by fire in 1811. Two-thirds of the population are Germans, and one-third Protestants. Historically the town is noted as the place where the peace between Austria and France was signed in 1805.

Szegedin, at the confluence of the Theiss and Maros, about a hundred miles south-east of Buda-Pesth, was at the census of 1869 the second city in the kingdom, containing a population of about 70,000; but on the night of the 11th and 12th of March, 1879, almost the whole town was destroyed, and many lives were lost, by an inundation caused by the giving way of the embankments of the Theiss. The town is now in course of being rebuilt, and the government has undertaken the reconstruction of the embankments of the Theiss on the most magnificent scale. About fifteen miles to the north-east of Szegedin, near the Hodos marsh, stands the large market-town of Hold-Mezö-Vasarhely (49,000), the seat of an enormous trade in cattle and tobacco. About twenty-five miles to the south-west of the same town is Maria-Theresiopel (in Hungarian, *Szabadka*; 56,000), another large market-town, and the most widely scattered commune in Hungary, being spread over an area of about 760 square miles. About 60 miles to the north, in the plain between the Danube and the Theiss, lies Kecskemet (41,000) in an immense sandy tract covered with shells and haunted by eagles and bustards. The town itself is noted for its great cattle fairs. In a similar plain on the other side of the Theiss stands Debreczin (46,000), the capital of a large pastoral district. The inhabitants of this town claim the credit of speaking the Hungarian language in its greatest purity.

Hungary was settled at an early period by a succession of different races, Germans, Huns, Slavs, Avars, &c., and at the close of the ninth century was completely overrun by the Magyars (called by the Slavs *Ugri* or *Ungri*, and by the Germans *Ungarn*). The Magyars extended their conquests as far as the Enns, but after their defeats by Henry I. and Otho I. in 933 and 955 were restricted to the territory beyond the Eastern Mark (Austria proper). The country was Christianized towards the close of the same century, and in the year 1000 Stephen received from the pope the title of king. In 1004 Transylvania was added to the kingdom, but was afterwards on several occasions severed from and reunited to it. (See below.) Croatia was annexed before 1100, and other territories besides were at different times temporarily under the rule of the King of Hungary. In 1526 the crown of Hungary passed by the free choice of the states of the realm to Archduke Ferdinand of Austria; but between 1541 and 1551 the land was almost entirely subjugated by the Turks, who were not finally expelled till 1687, and did not renounce their claim to the land till the peace of Carlowitz in 1699. The crown, originally elective, was first declared hereditary in the house of Hapsburg by the Emperor Leopold in 1687.

Transylvania (in German, *Siebenbürgen*, "seven castles," so called from strongholds belonging to the seven jurisdictions into which the country was at one time divided; in Hungarian, *Erdely* or Forest Land) is altogether a mountainous region, the Carpathians covering not only its southern and eastern frontier, but sending out numerous ramifications, the most important of which, proceeding east to west, give more or less of that direction to its principal streams. A characteristic feature of the mountains of this region is the chasms, several thousand feet in depth, by which they are here and there intersected. The whole surface belongs to the basin of the Danube, which receives a great part of its waters very circuitously by the Maros and Szamos, both tributaries of the Theiss. There are many wide valleys and extensive plains, on which, much more in consequence of their natural fertility than the skill displayed in managing them, rich harvests are reaped. The crops are the same as those of Hungary proper. Above 40 per cent of the surface is occupied by magnificent forests, to which both its Latin and Hungarian name are due, the former signifying "beyond the wood," and referring to the vast forest that covers the frontiers of Hungary and Transylvania. The minerals of Transylvania are almost as abundant and varied as those of Hungary. The principal are gold (found both in mines and the rivers), silver, copper, and salt, the less important quicksilver, iron, lead, sulphur, arsenic, vitriol, alum, marble, graphite, and porcelain-clay. Gold is sometimes found in tellurium, a metal quite peculiar to Transylvania. Salt occupies immense tracts and is practically inexhaustible. In some parts it forms entire mountains. Manufactures are still in a very backward condition, and are chiefly in the hands of the German portion of the inhabitants. As to the composition of the population see above. The area of Transylvania is 25,452 square miles, and the population in 1869, 2,101,727.

The two principal towns of Transylvania are Klausenburg (in Hungarian, *Kolozsvar;* 26,000) and Kronstadt (in Roumanian, *Brasiovu;* in Hungarian, *Brasso;* 28,000). The former, situated on the Little Szamos towards the northwest of the territory, is regarded by the Magyars, who predominate there, as the capital of Transylvania, and is a town of Roman origin, which afterwards became German. It has possessed a Hungarian university since 1872. Kronstadt, in the southeast of the country, owes its importance to its vicinity to the Tömös pass, by means of which the principal trade with Roumania is carried on across the Transylvanian Alps. The town was founded in 1213 by some German knights to whom Andreas II. of Hungary had made a gift of the district.

Transylvania was conquered by the first King of Hungary in 1004, and was governed by viceroys called *woywodes*. In 1536 it was made a separate principality, which it continued to be till near the close of the seventeenth century, when it was ceded to Austria. In 1713 it was united with Hungary, in 1765 erected by Maria Theresa into a grand-principality, though still attached to the Hungarian crown, in 1849 separated from Hungary and made a crownland of Austria, and in 1865 finally reunited to and completely incorporated with Hungary.

CROATIA AND SLAVONIA form together a single kingdom, which extends in the main between the rivers Save and Drave, but includes also a portion of the territory in the south-west between Bosnia and the Gulf of Quarnero. The southern portion of this strip, including all the south-western district, forms the Frontier Territory, which, along with certain other districts along the Turkish frontier now belonging to Hungary and Transylvania as well as Croato-Slavonia, had at one time a purely military organization, but was in 1873 annexed to the Croato-Slavonian kingdom, though it has not yet been put entirely on the same footing as the rest of the kingdom as regards administration. Certain departments are still under the superintendence of imperial officials. The total area of the kingdom, including the frontier district, is 16,832 square miles; the total population in 1869, 1,838,198.

As regards the surface Croato-Slavonia is divided by the Kulpa into two districts. North of this stream the land is traversed by a richly wooded spur of the Alps with few summits exceeding 3000 feet in height. In the west, near Agram, an isolated volcanic mountain, the Slemye, rises to the height of 3300 feet. South of the Kulpa the land belongs to the Karst region described under CARNIOLA, and contains various summits upwards of 5000 feet in height. The level and undulating tracts occur chiefly in the east, and are mostly covered with fertile fields intermingled with vineyards and orchards. Syrmia in particular, extending along the Drave in the eastern extremity of the kingdom, is a veritable garden. The products are in general the same as those of Hungary, but it may be mentioned that the rearing of bees here receives an unusual amount of attention, which is largely due to the great demand for wax in consequence of the prevalence of the Greek ritual in the province. In the provincialized portion of the kingdom 90 per cent of the whole surface is productive, in the frontier district (to which, as just mentioned, a portion of the Karst belongs) only about 81½ per cent. Forests are most abundant in the provincialized portion, and especially in Croatia, where the finest oaks in Europe adorn the eastern slopes of the mountains. The minerals include iron, silver, copper, lead, zinc, sulphur, and coal, but are altogether unimportant. The coal-beds between the Drave and the Kulpa are considerable, but worked only to a small extent. Manufacturing industry is almost entirely domestic. About 97 per cent of the inhabitants are Slavs (Slovenians, Croatians, and Servians), the rest Germans, Magyars, Italians, Greeks, &c. The people belong chiefly to the Non-united Greek Church, and the remainder are mostly Roman Catholics. The language spoken by them is Servian, or a closely allied dialect. The capital of the Croato-Slavonian kingdom is Agram (21,000), the *Zagor* of the Croats and *Zagrab* of the Magyars. It is situated in the west of the kingdom, in Croatia, not far from the left bank of the Save, and occupies two hills in the midst of meadows, interspersed with oak groves. It has an ancient Gothic cathedral, and a university founded in 1874. The capital of the Slavonian part of the kingdom is Eszek (17,000), situated on the Drave, not far from its confluence with the Danube. It occupies the site of the Roman city of Mursa-Aelia, which was made by Hadrian the capital of Lower Pannonia, and owes its importance at the present day chiefly to

its trade in the agricultural produce of the neighbourhood. Croatia was annexed to Hungary before the close of the eleventh century. With Hungary it passed to the House of Hapsburg in 1526, but it belonged to that part of the kingdom which was in the occupation of the Turks from the middle of the sixteenth to near the end of the seventeenth century. A separate diet was granted to the provinces of Croatia and Slavonia in 1849, and the relations of the kingdom to the Hungarian crown were finally determined in 1868.

FIUME is a free city lying at the head of the Gulf of Quarnero, at the north-west of the Croato-Slavonian kingdom. It is the chief port belonging to the Hungarian crown, which has vainly endeavoured to make it a rival of Trieste, the difficult navigation of the Gulf of Quarnero keeping away foreign flags. Its anchorage, formerly confined to the river Fiumara, has been greatly improved by the construction of a breakwater which protects the roadstead from all winds except the south-west. The town has various manufactures, but the mainstay of the place is shipbuilding, for which the splendid forests of the Julian Alps afford the greatest facilities. The name of the city is a corruption of the last word of its ancient Latin name *Fanum Sancti Viti ad Flumen* (the sanctuary of St. Vitus beside the river). The German name of the town is *St. Veit am Flaum*, the Illyrian *Reka*. Fiume was conquered from the Byzantine Empire by Charles the Great, who placed it under the government of its own dukes, one of whom about 900 assumed the title of king, and founded a line of kings that lasted for about a hundred years. Fiume afterwards came into the possession of the lords of Valsa as a fief of the patriarchs of Aquileia, and in 1471 it was purchased by the emperor Frederick III. In 1717 it was made a free port, and in 1870 a free city directly under the Hungarian crown.

BOSNIA AND HERZEGOVINA. See the general account of TURKEY.

LIECHTENSTEIN.

Liechtenstein is a small independent principality occupying the angle between the Swiss cantons of St. Gall on the west and the Grisons on the south, with a greatest length of about 15 and a greatest breadth of about 6 miles. It is a pastoral district with mountain peaks rising to a height of from 6500 to 8000 feet, and is inhabited by a Germanic population, almost all Catholics. As regards customs and taxation it is united with the Austro-Hungarian monarchy. Since 1818 it has possessed a constitutional government; but its present constitution, according to which the diet consists of fifteen members, twelve of whom are elected by the people directly and three nominated by the prince, bears date Sept. 26th, 1862. In the administration of justice an appeal lies from the local courts to the tribunal of Innsbruck, and thence to the princely chancery, the seat of which is at Vienna, the usual residence of the prince. In ecclesiastical matters the principality is dependent on the Bishop of Coire. Besides Liechtenstein proper, the princes of Liechtenstein also possess the principalities of

Troppau and Jägerndorf in Austrian Silesia. The house of Liechtenstein is first found mentioned in documents in the twelfth century. Of the present possessions of the family Troppau was acquired by purchase in 1614, Jägerndorf in 1623, and the lordships of Vaduz and Schellenberg in 1699. The last two were erected into the imperial principality of Liechtenstein by the emperor Charles VI. in 1719, and from that date till the dissolution of the German Confederation in 1866 the princes had a seat in the Germanic diet. The area of the principality is 62 square miles, its population in 1876, 8664.

SWITZERLAND.

Switzerland (German, *Schweiz;* Italian, *Svizzera;* French, *Suisse;* Latin, *Helvetia*) is a federal republic of Central Europe, situated between lat. 45° 50′ and 47° 50′ N.; and lon. 6° and 10° 25′ E. Mountains and rivers inclose the country on almost every side, and define its boundaries by grand natural features. The chief localities where these features are wanting are on the north, between Schaffhausen and Baden; in the south, between Ticino and Italy, and between Geneva and Savoy; and, more than all, on the west and north-west, where the

Cantons.	Area in sq. m.	Population, Dec. 1, 1880.	Pop. per sq. m.	Percentage (1870). Prots.	R. Caths.	Chief Towns.
Aargau (Fr. Argovie),	543	198,266	365	54	45	Aarau.
Appenzell, Rhodes, Outer,	100	51,960	520	95	5	Appenzell.
„ „ Inner,	60	12,882	213	1½	98½	Herisau.
Basel (Fr. Bâle), city,	14	65,101	—	72	26	Basel.
„ country,	163	59,278	364	80	19	Liesthal.
Bern (Fr. Berne),	2,660	531,991	200	86	13	Bern.
Freiburg (Fr. Fribourg),	644	115,429	179	15	84	Freiburg.
Geneva (Fr. Genève; Ger. Genf),	109	101,637	932	46	51	Geneva.
Glarus (Fr. Glaris),	267	34,262	128	80	19	Glarus.
Grisons (Ger. Graubünden),	2,774	95,040	34	56	43	Coire (Chur).
Lucerne (Ger. Luzern),	579	134,811	233	3	97	Lucerne.
Neuchâtel (Ger. Neuenburg),	312	103,751	333	86	12	Neuchâtel.
St. Gall (Ger. Sanct Gallen),	779	209,801	269	39	61	St. Gall.
Schaffhausen (Fr. Schaffhouse),	116	38,349	331	91	8	Schaffhausen.
Schwyz (Fr. Schwytz),	351	51,333	146	1½	98½	Schwyz.
Solothurn (Fr. Soleure),	303	80,449	265	16	83	Solothurn.
Ticino (Ger. and Fr. Tessin),	1,095	130,787	119	⅛	99⅞	Bellinzona. Lugano.
Thurgau,	381	99,000	260	74	25	Frauenfeld.
Unterwalden, Upper,	183	15,360	84	2½	97½	Sarnen.
„ Lower,	112	11,996	107	½	99½	Stanz.
Uri,	415	23,710	57	½	99½	Altorf.
Valais (Ger. Wallis),	2,026	100,305	50	1	99	Sion.
Vaud (Ger. Waadt),	1,244	235,434	189	91	8	Lausanne.
Zug,	92	23,001	250	4	96	Zug.
Zürich,	665	317,058	476	92½	6	Zürich.
Total,	15,987	2,841,533	177	59	40	Bern.

frontiers so intermingle with those of France that their limits are only fixed by imaginary lines. The greatest length of Switzerland, from west to east, is near the parallel of 46° 35′, where it is 206 miles; the greatest breadth, measured a little west of the meridian of 9° east, is 139 miles.

POLITICAL DIVISIONS.—The table in preceding page gives the names of the cantons or partly independent states of which the Swiss Confederacy is composed, along with various information regarding them.

PHYSICAL FEATURES.—These are on the grandest scale, and furnish scenery which, if equalled, is not surpassed by any other part of the globe; lofty mountain ranges towering above the clouds beyond the limits of perpetual snow, enormous glaciers descending from their sides and blocking up the higher valleys; magnificent lakes embosomed among mountains, which often rise sheer from the water's edge for many thousand feet, and wild romantic valleys forming the channels of impetuous streams, fed by numerous torrents and cascades. The loftiest mountain-chains belong to the Alps, and are situated chiefly in the south. The central nucleus is Mount St. Gothard, on the confines of cantons Uri, Ticino, and Valais.

The St. Gothard Pass.

This remarkable mass, nearly equidistant from the equator and the pole, unites the principal water-sheds of Europe, and sends its waters into four large basins—north by the Rhine to the German Ocean, south-west by the Rhone to the Mediterranean, south-east by the Po to the Adriatic, and east by the Danube to the Black Sea. In like manner it forms a kind of starting-point for

the loftiest ranges of the Alps. It belongs itself to the Helvetian or Lepontine range, which stretches east from it to Mount St. Bernardin, and south-west to Mount Rosa, from which it is continued west, under the name of the Pennine Alps, to the culminating point of Europe in Mont Blanc, beyond the Swiss frontiers in Savoy. From Mount St. Bernardin, the main range of the Alps, belonging to what is called the Rhætian branch, stretches first east, and then north-east, across canton Grisons into the Tyrol. To the north of the ranges now described, and nearly parallel to them, two other ranges, setting out as before, proceed, the one south-west between cantons Bern and Valais; and the other north-east along the northern frontiers of the Grisons, and through cantons Uri, Schwyz, Glarus, and St. Gall. These ranges, though possessed of many lofty summits and exhibiting much magnificent scenery, are much less elevated than the more southern ranges. They throw out numerous ramifications towards the north, but in that direction descend so rapidly that the country almost loses its alpine character, and becomes more hilly than mountainous. Besides the Alps, properly so called, the only range deserving of notice is that of the Jura, which is linked to the Alps by the Jorat, a small range which stretches west and north-west across the Pays-de-Vaud, and extends in a north-north-western direction along the west of cantons Geneva, Vaud, and Neuchâtel.

RIVERS AND LAKES.—The Rhone and Rhine both have their sources in the glaciers of Switzerland, and the Danube and the Po are indebted to it for important feeders; but owing to the mountainous nature and inland position of the country, none of the rivers acquire so much development within its limits as to become of great navigable importance. The Rhine, formed in canton Grisons by the junction of the Vorder and Hinter Rhein, flows north into the Lake of Constance, and then on emerging from the lake flows west to Schaffhausen, where it forms the celebrated falls of that name. The Rhone, rising in the Glacier of St. Gothard, on the north-east confines of canton Valais, flows through the middle of that canton, first west-south-west and then north-north-west, till it falls into the Lake of Geneva. Immediately after issuing from the lake at the town of Geneva it receives the Arve, and about 10 miles below quits the Swiss frontier. The waters which the Po receives from Switzerland are carried to it by the Ticino, which drains the canton of that name; those which the Danube receives are carried to it by the Inn, which rises and has a considerable part of its upper course in the east of canton Grisons. The whole drainage of Switzerland is thus divided among the three basins of the North Sea, the Mediterranean, including the Adriatic, which is properly only a branch of it, and the Black Sea. The proportions received by each are in the order now stated, but the far largest share belongs to the first. The lakes of Switzerland are more numerous than in any other part of Europe, with the exception of Finland; and both from their individual magnitude and the lofty mountains among which they are embosomed often give to the scenery its peculiar charm. Those of Geneva in the south-west, and of Constance in the north-east, the two largest of the whole, as well as those of Maggiore on the south side of the Alps, are shared in a greater or less degree by other countries;

but within the limits of Switzerland, and not far from its centre, often at short distances from each other, though usually separated by mountain ranges, stretch across the whole breadth of the country from west-south-west to east-north-east. Tracing them in this direction, we come successively to those of Neuchâtel, with Morat and Bienne in its vicinity, Thun with its feeder Brienz, Lucerne or Vierwaldstätter-see, Sempach, Baldegg, Zug, Zürich, and Wallenstadt. All

Vevay and the Lake of Geneva.

these internal lakes, owing to the superior loftiness of the southern ranges, which gives them no outlet in that direction, discharge themselves by streams which flow north, and consequently belong to the basin of the Rhine.

GEOLOGY AND MINERALS.—All the loftiest alpine ranges have a nucleus of granite, on which gneiss and mica-slate recline generally at a high angle, for the most part covering the granite, which, however, emerges here and there in isolated masses. These rocks are particularly developed in St. Bernard, St. Gothard, the Faulhorn, &c., and contain a great number of beautiful minerals, particularly garnets and various kinds of rock-crystals. Syenite is not of frequent occurrence, but is found on the south side of St. Gothard, and on the Finster-Aarhorn. Diallage-rock, or gabbro, is seen exposed in steep precipices near Saas, in the upper part of canton Valais, and forms whole mountains in various parts of canton Grisons. In the same locality serpentine is largely developed. Granular limestone is widely diffused throughout the Alps, and is more particu-

larly exposed on the Great and Little St. Bernard, and the south side of St. Gothard. It usually rests on mica-schist, and often alternates with clay-slate and primitive gypsum. Mountain-limestone composes the great masses of the Dent-du-Midi, the Diablerets, the Wetterhorn, Dodi, &c. It is also seen in large masses on the east shore of the Lake of Geneva, on the Molesson, Stockhorn, Pilatus, and Säntis. The proper carboniferous rocks are very sparingly developed, but regular coal-bearing strata are found in the Simmenthal, the Kanderthal, and on the south shore of Lake Thun. In the Jura, limestone equivalent to the oolite, often resting on muschelkalk, is so largly developed that the name of Jura limestone is now often applied to the whole oolitic formation. Above the Jura limestone is the molasse, a soft green sandstone belonging to the lower series of the tertiary formation, and covering an extensive area in the lower parts of Switzerland. None of the rocks are rich in minerals. Lead and copper, both argentiferous, are found in canton Grisons, and were once worked, though they are now abandoned. Iron is more widely diffused, and is worked to advantage in several quarters, particularly among the strata connected with the Jura limestone. Rock-salt is worked to some extent at Bex in canton Vaud, and saline springs occur in many places, but have not been turned to much account. The only other minerals deserving of notice are alabaster and marble, widely diffused; sulphur, near Lake Thun; gypsum, particularly in canton Freiburg; and asphalt, in the Val-de-Travers in canton Valais. Mineral springs occur in many quarters; as the most celebrated, we may mention those of Leuk or Louèche in the Valais, Baden and Schinznach in Aargau, Pfeffers in St. Gall, and St. Moritz in the Engadine.

The Hospice of Great St. Bernard.

CLIMATE.—The great diversities here observed are evidently caused not by differences of latitude, but of elevation. Hence while winter is reigning in all its rigour on the lofty summits or slopes of the mountains, it is only necessary to descend into the lower valleys to find that spring is far advanced. In making this descent we may direct our course not only south, where in the lower valleys of canton Ticino a truly Italian climate is enjoyed, but even north, and find in the plains of Basel that winter has long departed though it still lingers among the heights of St. Gothard. In some of the inclosed valleys north of the Alps too

a higher temperature is enjoyed in certain seasons of the year than in the adjoining more open districts. This is particularly the case in the lower parts of the valley of the Reuss in the canton of Uri. This higher temperature is partly accounted for by the lofty mountains that encompass the valley, but is chiefly to be ascribed to the "Föhn," a south wind that blows in spring and winter, and which even in the snow season sometimes brings with it an Italian warmth, and in spring seems to have the power of enchantment in melting the snow, swelling the streams, and bursting the blossoms. At other times, however, it presents a wholly different aspect. It will sometimes without warning rush down from the heights of St. Gothard with constantly increasing violence, whirl aloft in clouds the snow on the mountain-tops, sweep moaning through the forests beneath, and then with sudden fury break the heavy stillness of the valley, bursting in wild blasts through the villages and with headlong impetuosity over the lake in the north, raging for days together, uprooting trees, destroying huts, causing mountain torrents to overflow, and stirring the lake to its lowest depths. In Altorf, which on several occasions has been destroyed by fire in consequence of the Föhn, the law requires all fires to be extinguished on its approach. This wind, which is only a stream from the equatorial air-current, a continuation of the sirocco of the Mediterranean countries, derives its peculiar qualities from the configuration of this Alpine district. On the northern slopes of the mountains and in the depths of the valleys it is dry; on the southern slopes and in the higher regions it is moist. For when the warm wind striking obliquely against the mountain-barrier is forced to ascend, it becomes colder the more it is rarefied. The moisture carried up with it then condenses and comes down in heavy rain, and heat is thus liberated, and the wind on descending the valleys becomes constantly warmer and drier, the temperature being still further increased by the shelter of the mountains. According to observations which have long been made with great care at the hospice of St. Gothard, Bern, Zürich, and Geneva, the respective mean temperatures are, in winter, 17°·94, 29°·37, 30°·34, 33°·35; and in summer, 45°·71, 58°·78, 64°·15, and 66°·10. For the purpose of comparison, we may mention that the winter temperature of London is 38°·22; and the summer temperature, 61°·74; and that the mean annual temperature of the hospice of St. Gothard is nearly two degrees lower than that of the North Cape.

VEGETATION, AGRICULTURE, &c.—Few countries in Europe, even of larger extent, can boast of a more varied vegetation than Switzerland. It has been divided into seven regions. The characteristic product of the first is the vine, which grows up to 1700 feet, and in some districts of Zürich and the Lake of Thun to 1800 feet, above the sea-level. The next in ascent is the hilly, or lower mountain region. It rises to the height of 2800 feet, and is characterized by the luxuriance of its walnut-trees. Though not well adapted for wheat it raises good crops of spelt; and has excellent meadows, from which two cuttings of hay are annually obtained. The third, or upper mountain region, has its limit at 4100 feet. Its principal product is forest timber, consisting of all varieties of hardwood, but more especially beech. The walnut grows in it, though not vigorously, up to 3500 feet; and good crops are obtained of barley and oats. The pastures

too are excellent. Above this, and up to the height of 5500 feet, there follows the fourth or subalpine region, distinguished by its pine forests. Here winter lasts from eight to nine months; no regular crops are grown, but some kinds of kitchen-vegetables are raised, and a few potatoes, generally of small size. Many of the heights are covered with a rich grassy sward. The next two regions are sometimes included under the common name of alpine, but admit of two distinct divisions; the one, lower alpine, terminating at 6500 feet; and the other, upper alpine, ascending to the limit of perpetual snow. The former is the proper region of alpine pastures; the latter as it ascends becomes more and more stunted in its vegetation, and the variation of the seasons is lost, spring and autumn being altogether excluded, and a winter of rigorous severity following close upon a short summer of only five or six weeks. The seventh and last region is that of perpetual snow. Even here vegetation is not utterly extinct, and several varieties of lichens are found clinging to the rocks. Many parts even of the lower regions of Switzerland are of a stony sterile nature, but on every side the effects of persevering industry are apparent, and no spot that can be turned to good account is left unoccupied. The best cultivated cantons are Basel, Aargau, Thurgau, Vaud, and Geneva. The principal grain crops are, in the flatter districts, spelt, wheat, rye, summer and winter barley, and Turkish corn; in the higher districts, summer barley and oats. Hemp and flax are extensively grown on all lands suitable for them, and nearly supply the whole of the home consumption; oil and poppy seed are also generally cultivated, and in some of the higher districts caraway forms a favourite crop. Tobacco is chiefly confined to the flatter parts of Freiburg, Ticino, and Vaud. In the same cantons occasional patches of saffron are seen. **Fruit** is produced in abundance in all the north cantons, where apple, pear, plum, and cherry trees are seen in almost every quarter growing either singly or in orchards; they are met with less frequently in the east and west, and become somewhat rare in the south. In many of the warmer spots, with a south exposure and north shelter, apricots, peaches, almonds, and figs thrive well in the open air. More delicate fruits, as oranges, citrons, lemons, and pomegranates, are almost confined to the south side of the Alps, in canton Ticino. There too the olive thrives, and a good deal of silk is obtained by the cultivation of the mulberry. With the exception of Uri and Glarus there is not a canton in which the vine is not grown to a greater or less extent. Many of the cantons thus raise more wine than they require, but the quality, in general, is inferior, and fails to create a foreign demand. **Timber** of all kinds is abundant in most of the cantons, but great waste has been committed, and several of the most accessible forests have been so much thinned that the prospect of an ultimate scarcity in several quarters has begun to cause serious apprehension. Among domestic **animals** the first place belongs to the horned cattle, which are both remarkable for their numbers and the superiority of their breeds. Swiss cows can scarcely be surpassed, either in beauty or in the amount of their dairy produce. At the end of every summer large numbers of them are exported, and the winter stock is only about two-thirds of the summer one. Sheep are very much confined to the lower districts, and have not yet attracted much attention, except in cantons Vaud and Geneva, where the

merino, regularly imported from Spain, is both kept pure, chiefly for the purpose of supplying a foreign demand, and has been extensively employed in improving the native breeds; on the higher grounds, where sheep cannot well be reared, and chiefly among the poorer classes, unable to procure a more valuable stock of horned cattle, goats are very numerous, and managing to pick up their subsistence where no other domestic animal could live, contribute greatly to the comfort if not to the wealth of their possessors. Among wild animals are bears and wolves, found both in the Alps and Jura; chamois, found chiefly among the loftiest mountains of the Alps; wild boars, not uncommon in cantons Bern, Vaud, and Aargau; stags in canton Bern, and occasionally in the Grisons; badgers, foxes, hares, otters, birds of prey of large dimensions, and many varieties of winged game.

Netstall, canton Glarus, overwhelmed by an avalanche from the Wiggis.

MANUFACTURES.—Though the geographical position and the configuration of the surface place Switzerland under considerable disadvantages, manufactures of various kinds were established in it at a very early period, and have extended rapidly in recent times in spite of the formidable difficulties that they have to contend with, arising from their isolated position and their want of coal. The overcoming of these obstacles speaks volumes for the energy and intelligence of the people, for it is by these qualities alone that Swiss fabrics have been able to make a market for themselves in every part of the world. In no part of Europe are the leaders of industry more zealous to keep abreast or to get in advance of the times, and there are excellent technical schools in all the leading cities for the training of manufacturers and artisans, the polytechnicum at Zürich being a model institution of this class. Formerly the factory system was little known, and the far greater part of the tissues were produced by domestic looms not kept in

regular operation throughout the year, but chiefly during the winter, and in the evenings when the ordinary labours of the field had ceased. Such domestic manufactures are still largely pursued, but large manufacturing establishments have also sprung up in various places, not only in the larger towns but even in retired valleys. Water-power, which the physical configuration of the country furnishes in such abundance, is frequently taken advantage of to supply the want of coal. In the canton of Glarus, for example, in the very heart of the mountainous region of Switzerland, the waters of the Linth drive the water-wheels and turbines of upwards of eighty factories, for the spinning, weaving, printing, and dyeing of cotton, which produce cotton goods to the annual value of about £2,000,000. Besides cotton, which is also manufactured in the cantons of Zürich, St. Gall, and Appenzell, there are included among the staple articles of Swiss manufacture silk goods, chiefly in Zürich and Basel, the former city producing chiefly large pieces, the latter chiefly ribbons; watches in Geneva, Vaud, Neuchâtel, and Bern; jewelry in Geneva, and machinery in the canton of Zürich (at Winterthur and the city of Zürich) and at Olten in the canton of Solothurn. The watchmaking of Western Switzerland is a very important industry and one of growing magnitude. It is mainly carried on in the city of Geneva, and the towns of La Chaux de Fonds and Locle, in a bleak valley in the Jura, in the canton of Neuchâtel, where this industry, introduced about 200 years ago, has increased the population from a few hundreds to upwards of 30,000. Geneva is the chief seat of the manufacture of the more expensive ornamented watches, Locle of that of chronometers. For pocket chronometers Locle is said to outstrip all competitors, and it is even beginning to rival England in the production of marine chronometers. The jewelry of Geneva is celebrated for its careful finish, no less than for the chaste severity of its designs. The industries that are still mainly carried on domestically are straw-plaiting in the cantons of Freiburg, Aargau, and Ticino; wood-carving and the making of inlaid woodwork in the canton of Bern, principally in the Oberland, and embroidery in the Inner-Rhodes of Appenzell.

COMMERCE AND COMMUNICATIONS.—The manufactured articles mentioned in the previous paragraph furnish of themselves the materials of a considerable export trade, and to these must be added cattle, cows, butter, cheese, cherry-brandy, timber, charcoal, &c.; the more important imports are corn, rice, salt, salt-fish, wine, fine woollens, and various articles in iron and copper. In addition to this ordinary trade Switzerland shares in the very important transit which is carried on between France, Germany, and Italy. The nature of the country throws very extraordinary difficulties in the way of this traffic, but the means which have been employed to lessen or remove them are almost as extraordinary as the difficulties, and the great roads which now lead across some of the loftiest passes of the Alps will long be pointed to as among the most remarkable of engineering achievements. Nor have ordinary communications of the interior been neglected. In almost every canton, as far as the nature of the surface will admit, the roads are both well made and carefully kept, and though the impetuosity of the rivers greatly limits their navigable importance, and

leaves little scope for the construction of extensive canals, many hydraulic works have been executed on a scale of no mean extent, considering the limited resources of the country and the obstacles to be overcome. Among others may be mentioned the two canals of the Linth, one connecting it with the Lake of Wallenstadt and the other connecting it through that lake with the Lake of Zürich. The railway system of Switzerland is also now largely developed, there being about one mile of railway for every eleven square miles of surface. One mile in sixty of the whole system consists of tunnels, and one of the Swiss tunnels is the most gigantic work of the kind ever accomplished. This is the tunnel pierced through the St. Gothard group of mountains, from Göschenen on the north to Airolo on the south, at the height of 3780 feet above the level of the sea, and 5900 feet below the highest point of the mountains that tower over it. The length of the tunnel is upwards of nine miles, and its construction occupied from 1872 to the spring of 1880. By means of this tunnel direct railway communication through the heart of Switzerland is established between northern and southern Europe; and the cost of the work has been partly defrayed by the governments of the three countries, Italy, Switzerland, and Germany, directly interested in it.

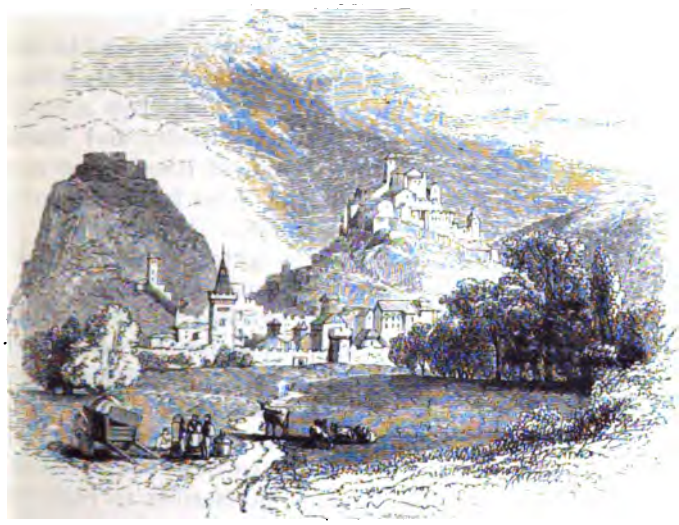
The number of letters annually carried by the Swiss post-office is equal to about 30 per head of the population, which is a larger proportion than in any other country except England. Switzerland has also a very complete system of telegraphs, and the service is one of the cheapest in Europe. The annual number of telegraphic despatches (including those in transit) is nearly equal to one for every inhabitant, which is a higher proportion than in any other country whatever. (In England and Wales and in Scotland the proportion is about two despatches for every three of the population.) The large proportion of telegraphic messages conveyed by the Swiss wires is partly due to the large number of messages in transit (more than one-fifth of the whole) and partly to the large number sent by travellers from one hotel to another.

Formerly there existed a great hinderance to trade in the want of uniformity in the monetary system and the system of weights and measures; but this was removed in 1852 by the adoption of the French decimal systems.

RELIGION AND EDUCATION.—Both the Evangelical-Reformed Church as modelled by Calvin and Zuinglius and the Roman Catholic are national churches in Switzerland. The organization of the former is synodal and presbyterian; the latter is governed by five bishops. The proportion in which Protestants and Roman Catholics are represented in different cantons can be seen from the table at the beginning of the section. The order of the Jesuits and the societies affiliated to it are not allowed within the Confederation. In terms of the new constitution adopted in 1874 primary education is secular and compulsory throughout the Confederation. There are about 7000 primary schools and 300 secondary schools; while for the higher education there are four universities, Basel, Zürich, Bern, and Geneva, each with four faculties, of which the theological is in each case Protestant; two academies or incomplete universities, one at Lausanne and one at Neuchâtel (with the faculties of science,

literature, and jurisprudence); and a polytechnic school at Zürich, the organization of which provides for a preliminary course in mathematics and for special training in seven departments—the art of construction, engineering, technical mechanics, technical chemistry, agriculture and forestry, pædeutics, and political economy.

PEOPLE.—The Swiss are a mixed people as to race and language. German, French, Italian, and a corrupt kind of Latin called Rhætian or Rumonsh (the latter the native name), are spoken in different parts of the Confederation. They are mentioned in the order of their importance. German is the sole language in fourteen cantons—Zürich, Lucerne, Uri, Schwyz, Unterwalden, Glarus, Zug,



Sion, Capital of canton Valais.

Basel, Solothurn, Schaffhausen, Appenzell, St. Gall, Aargau, and Thurgau; French in Vaud, Neuchâtel, and Geneva; and Italian in Ticino. In Bern, Freiburg, and Valais German and French are spoken, and in Grisons German, Rhætian, and Italian. The dialect of French that is spoken by the uneducated in Western Switzerland is called Romand, and contains a large number of old French words. The differences that mark districts closely adjoining one another in Switzerland are often very striking, especially in Eastern Switzerland. Different languages, different religions, different habits, are found separated by the smallest intervals of space. From Coire to the valley of Schams in the Grisons it is said that there are scarcely two villages together which both have the same religion and speak the same language. If one village is Protestant and speaks German, there may be another on one side Protestant in faith but speaking the Rumonsh language, and another on the other side speaking the German language but adhering to the Roman Catholic faith. Nowhere perhaps is the contrast more marked than between the easy-going pastoral Roman Catholic

population inhabiting the mountains of Appenzell (the Inner-Rhodes), and the active, industrial, Protestant population inhabiting the plains (Outer-Rhodes). But the Swiss have lived so long in a state of confederation that, apart from these peculiarities of origin and language, they have acquired a decided national character, and may now be viewed as forming a single people. Thus viewed they are hardy, active, industrious, temperate, brave, patriotic, moral, and religious, and in all these respects will not lose by a comparison with any people in the world. But they are not without their faults. One of the most prominent of these is their excessive love of money. This makes them selfish and mercenary, and unscrupulous as to the mode of life which they pursue, provided money can be made by it. One of the most discreditable ways in which this feature of their character has long manifested itself is their readiness to enlist in the service of any foreign power with perfect indifference as to the justice or injustice of the cause in which they may be required to spend their blood. While thus engaged the only virtue on which they pique themselves is fidelity to their paymaster; but it must be admitted that their fidelity and bravery remain unimpeached. Even at the present day, in spite of laws against recruiting for foreign powers in Switzerland, the number of Swiss troops in foreign service, especially in the Dutch East Indies, is considerable.

GOVERNMENT AND DEFENCE, &c.—The cantons of Switzerland are united together as a federal republic for mutual defence, but retain their individual independence in regard to all matters of internal administration. By the constitution adopted by the federal diet, September 12, 1848, and modified by a vote of the people on the 19th April, 1874, the legislative power of the Confederation belongs to a federal assembly, and the executive power to a federal council. The federal assembly is composed of two divisions—the national council, and the council of the states or the senate. The national council is elected every three years by the cantons—one member to each 20,000; but when a surplus of above 10,000 exists an additional member is elected. Every lay Swiss citizen is eligible. Each canton, and when divided each half canton, is entitled to send one member at least. The senate consists of forty-four members—two for each canton; the half cantons sending one each. In addition to its legislative functions the federal assembly possesses the exclusive right of concluding treaties of alliance with other countries, declaring war and signing peace, sanctioning the cantonal constitutions, and taking measures regarding neutrality and intervention. Federal laws and resolutions not urgent must, in accordance with the law known as the *referendum*, on the demand of 30,000 citizens or eight cantons, be submitted to a vote of the people. The members of the federal council are nominated for three years by the united chambers of the federal assembly from those citizens who are eligible to the national council, to the number of not more than one for each canton. No member of one of these bodies can at the same time be a member of any of the others, and no member of the federal council is allowed to have any other employment either in the service of the Confederation or of any of the cantons, or to have any other calling or profession. The federal tribunal, the members of which are nominated

by the federal assembly for six years, decides in the last instance in civil causes between the cantons, or between them and the Confederation; also between the Confederation or cantons on the one part, and corporations or individuals on the other. The city of Bern is the seat of the federal council and of most of the central administrative authorities, but the federal tribunal has its seat at Lausanne. Each canton and half canton has likewise a constitution and government of its own for local matters, and in all the constitution is more or less democratic.

The finance of the Swiss Confederation, which is based on the principle of free-trade, is in a flourishing condition. The revenue is mainly derived from customs duties and the post-office, but the cost of administration of the latter department is nearly as great as the revenue derived from it, and is the heaviest charge on the general revenue of the Confederacy. The next highest charge is for the maintenance of the army. The debt charges absorb less than one-twentieth of the revenue. Each canton has besides a budget of its own.

The Swiss army consists of two divisions. The first is the regular army, which is composed of men from the commencement of their twentieth to the end of their thirty-second year; and the second the landwehr, composed of men from the commencement of their thirty-third to the end of their forty-fourth year. The Swiss troops are called under arms only for drill or military exercises, or on special emergencies. Recruits receive forty-five days' drill, and members of the regular army who have passed their recruit drill are called out for exercise for ten days every year for the first eight years of their service. The cantons are directed to see that all the male youth between school age and the age for army service receive fifteen afternoon drills annually. For the training of officers there is a central military school maintained by the federal government at Thun.

CHIEF TOWNS.—Bern (by census of 1870, 45,000), the seat of the federal government of Switzerland, stands 1912 feet above sea-level on a peninsular platform washed on three sides by the Aar, the deep bed of which is here crossed by the lofty Nydeck Bridge. The internal appearance of the town, with its numerous towers and fountains of the middle ages, the rills of water that purify its streets, its lines of projecting arcades that run along the foot of its massive houses, is of the most singular character, and every eminence in the town commands a magnificent view of the High Alps of the Bernese Oberland. Bern was founded in 1191 by Duke Berchtold of Zähringen, a statue of whom adorns the terrace in front of the cathedral, which occupies the highest site in the city. In the upper part of the same canton, between the Lakes of Thun and Brienz, in the midst of a large natural park occupied by maples, limes, and walnut-trees, lies Interlaken, which, though only a small village, enjoys a world-wide celebrity as the rendezvous of visitors to the Oberland. The most populous city in Switzerland is Geneva (German, *Genf;* 47,000, or with suburbs 68,000), at the south-western extremity of the lake of the same name, and the south-western angle of the whole Swiss territory. It is traversed by the Rhone, the deep blue waters of which river here issue from the lake in a current of remarkable rapidity. The

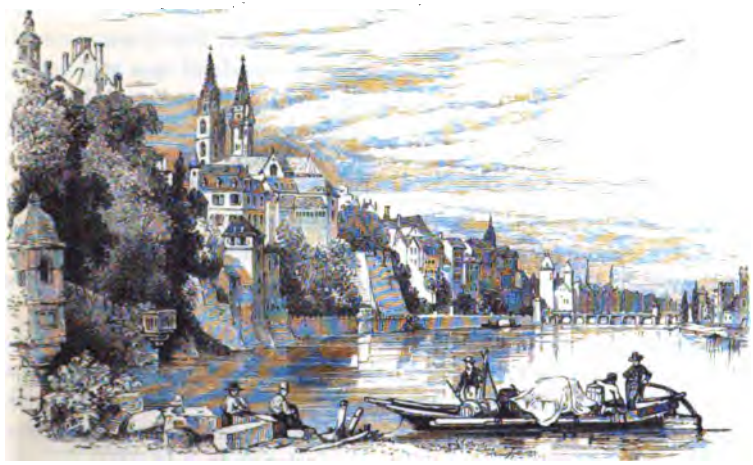
portion on the left bank is the city proper, the Geneva of history, dominated by the ancient Byzantine cathedral of St. Peter; that on the right bank, known as the Quartier St. Gervais, was formerly inhabited chiefly by the artisan classes, but is now greatly extended and embellished, and the principal resort of the wealthy visitors to the city, and the principal residence of the foreigners who come to settle in it from all the countries of Europe. In the old town are still to be seen the house in which Jean Jacques Rousseau was born, and that which was occupied by Calvin, who governed the town with all the authority of a dictator from 1541 to 1564. At the present day the character of the town is very different from that which it bore during the reign of Calvin for, though still an

The Grindelwald Glacier, Bernese Oberland.

important seat of industry (especially watchmaking and jewelry), Geneva is now pre-eminently a city of luxury and pleasure no less than a centre of culture and enlightenment. The origin of the city belongs to an early period. In the time of Julius Cæsar it already existed under the same name as that by which it is known at present. As Geneva occupies the south-western angle of the Swiss territory at the point of exit of the Rhone, the north-western angle, at the point of exit of the Rhine, is occupied by Basel or Bâle (45,000), the second town in Switzerland in point of population, and an important seat of industry, commerce, and finance. As a seat of industry it is chiefly celebrated for the manufacture of silk ribbons, but it is perhaps even more celebrated as a centre from which Protestant missions have been spread over the whole world. Basel dates from the fourth century, and at one time had a population of about 60,000, which was, however, reduced to about a third of that number at the time of the Napoleonic wars. The only other town of importance in Switzerland is Zürich (21,000), the Turicum of the Romans, situated at the western extremity of the lake of the same name, at the confluence of the Limmat and the Sihl. It is an

old imperial free city, to which rank it was raised in 1218, and is now a prominent centre both of industry and science. It is at the same time the most beautiful city in German Switzerland, and on both sides of it a series of delightful villages extend amidst gardens and vineyards along the north and south shores of the lake, part of them forming in reality suburbs of Zürich, the population of which is brought up by the inclusion of them to about 57,000.

HISTORICAL SKETCH.—The oldest inhabitants of Switzerland west of the Rhine mentioned in written history are the Helvetians, a Celtic people. Between 58 B.C. and 10 A.D. this people was subjugated by the Romans, under whom their territory first formed part of Gallia Belgica (according to Pliny), afterwards of the province of Maxima Sequanorum. The portion east of the Rhine, the



Basel (Bâle).

Grisons, anciently inhabited by the Rhæti, was conquered by Tiberius and Drusus about 15 B.C., and belonged to the province of Rhætia. Before the fall of the Roman Empire in the west the northern and largest portion of Switzerland was occupied by the Germanic confederation of the Alemanni, who introduced their manners and language. Under the successors of Clovis Switzerland became part of the Frankish Empire, and on the division of this dominion in the ninth century the eastern part fell to Germany. In 888 Rodolph, one of the local governors, succeeded in establishing a new kingdom, that of Upper Burgundy, extending from the Mountains of Jura to the Reuss, and this kingdom, along with Lower Burgundy, which was united to it in 930, was bequeathed by the last sovereign in 1032 to the German Emperor Conrad II. But for the most part the dependence of Switzerland on Germany was merely nominal. From about the end of the eleventh to the early part of the thirteenth century the authority of the dukes of Zähringen was paramount throughout almost all Switzerland, and from the latter date the counts of Hapsburg in the north and those of Savoy in the south-west grew more and more powerful. The Swiss Con-

federation grew up in consequence of the resistance offered by the central cantons to the pretensions of the former family, who, though properly only governors representing the emperor, desired to make themselves sovereign rulers. The first confederation was formed towards the end of the thirteenth century by the cantons of Schwyz (from which the Confederacy takes its name), Uri, and Unterwalden, and the object with which it was formed was virtually achieved within thirty years after its formation. In process of time the three original cantons were joined by the cities of Lucerne (1332), Zürich (1351), and Bern (1353), and the cantons of Glarus and Zug (1352). From 1353 till 1481 these eight members formed the entire Confederacy, but various territories were meanwhile conquered and governed either by single members of the Confederacy, or by all or several jointly. The principal of these were Aargau (except the Frickthal) and Thurgau, conquered from the house of Hapsburg, the former in 1415–18, and the latter in 1460–61. In 1481 Freiburg and Solothurn were admitted members of the Confederacy. At this time Switzerland was still in a certain measure connected with the German Empire, but in the Peace of Basel in 1499 it was freed from the jurisdiction of the imperial chamber, and its absolute independence was recognized in the Peace of Westphalia in 1648. Before the latter date the number of the Swiss cantons had been brought up by the admission of Basel and Schaffhausen in 1501, and Appenzell in 1513, to thirteen, and at that number it remained till 1798. The town and abbot of St. Gall, and the town of Bienne, had seats and votes in the diet without being in full federation; and there were besides six allies of the Confederation (the Grisons, Valais, Geneva, Neuchâtel, Mühlhausen in Alsace, and the Bishopric of Basel) not enjoying these privileges. In 1798 the whole organization in Switzerland was overturned by the French Directory. A republic of Helvetia was formed on the model of the the nexisting French Republic, and Geneva, Neuchâtel, the Bishopric of Basel, and Mühlhausen were annexed to the latter state. In 1803, however, the cantonal system was restored by Napoleon (under what is known as the act of mediation), but all the former subject lands now received their freedom, the number of the cantons being raised to nineteen by the addition of Aargau (including the Frickthal), the Grisons, St. Gall, Ticino (subject to Uri from 1512), Thurgau, and Vaud (subject to Bern from 1536). Finally, in 1814–15 the number of the cantons was brought up to its present figure by the addition of Geneva, Valais, and Neuchâtel. The last-mentioned remained till 1848, however, a principality subject to the King of Prussia, to whom it had belonged, except from 1806 to 1814, since 1707.

ITALY.

Italy is a kingdom in Southern Europe, consisting in the main of a large peninsula stretching southwards between the Adriatic Sea and the western part of the Mediterranean, but also including a considerable portion of the mainland

and some of the adjacent islands. The length of the mainland, from Mont Blanc at the north-western extremity of the country to Cape Santa Maria di Leuca, is about 720 miles; the breadth, from the French frontier near Mentone to the north-eastern extremity, about 340 miles; the least breadth, at right angles to the general direction of the peninsula, from near the mouth of the Garigliano to the nearest point on the opposite coast, about 80 miles. The principal islands belonging to it are Sicily and Sardinia. The former is triangular in shape, and has a length of 180 miles in a straight line along its northern side, 171 miles along its south-western side, and 113 miles along its eastern side. The latter has a length on the meridian of 9° E. of about 75 miles, and a breadth on the parallel of 40° 35′ N. of 32 miles.

POLITICAL DIVISIONS.—For administrative purposes the Kingdom of Italy is divided into sixty-nine provinces, which are grouped under sixteen departments (*compartimenti territoriali*), some of which consist of only a single province. The provinces are subdivided into circles or districts. The table on page 277 furnishes a list of the provinces and departments, with the area of each, and the population according to the census of 1871.

PHYSICAL FEATURES.—The length of the coast of the mainland of Italy has been estimated at about 1450 miles, that of the islands of Sicily and Sardinia at about 850 miles; so that the whole coast-line, inclusive of the smaller islands, amounts to about 2400 miles, or nearly one mile of coast for every 44 square miles of surface. The eastern shore is generally flat and uninteresting; presenting, particularly along its northern part, a long series of sandy islands and lagoons, which retard the progress of the rivers, dam up their mouths, and, depriving them of a proper outlet, occasion the formation of pestilential marshes. On the west coast the same thing is occasionally seen, but occurs on a large scale only in the Roman territory, where the Pontine Marshes, notwithstanding the proved practicability of draining them, are permitted to spread their poisonous malaria, and convert extensive tracts, of great natural fertility, into almost uninhabitable deserts. But with this very prominent exception, the west coast is considerably elevated; the ramifications of the mountains often stretching down and terminating in lofty cliffs, with a magnificent back-ground of alpine heights. Few countries can boast of possessing scenery of this description equal to that which is exhibited by the Gulfs of Genoa and Naples.

The interior of Italy is finely diversified. The loftiest mountains of the Alps stand on its frontiers, and shelter it from the rigours of the north; giving it a climate which, though not free from the disadvantage of an oppressive summer heat in the lower valleys and plains, is unrivalled for the general mildness of its temperature and the brightness of its sky. In immediate connection with the branch of the Alps called the Maritime Alps is the chain of the Apennines, which first proceeding east till the Adriatic is approached, then turn south and run down the middle of the peninsula through its whole length to the Straits of Messina; while numerous branches are thrown off laterally, and form an endless succession either of loftier hills clothed with forests or gentler slopes covered with olives and vines. In the spaces between the mountains and hills lie valleys

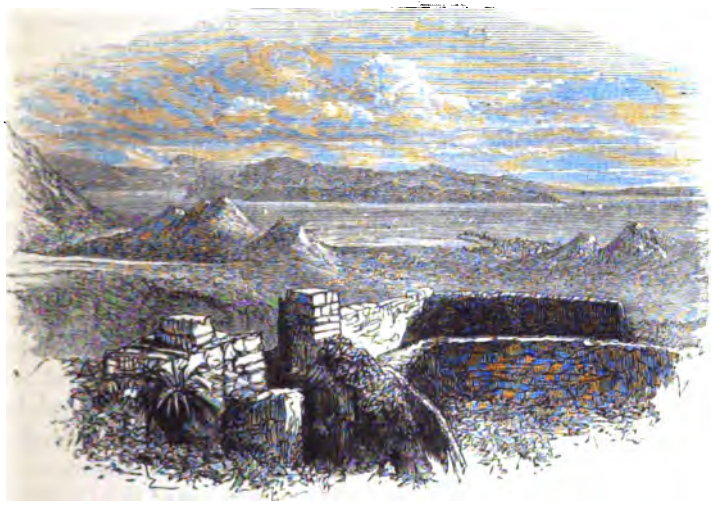
Provinces and Departments.	Area in sq. m.	Pop. on the 31st Dec. 1871.
Alessandria	1952	683,361
Cuneo	2755	618,232
Novara	2526	624,985
Torino (Turin) ...	3965	972,986
PIEMONTE (Piedmont) ...	11,198	2,899,564
Genova (Genoa) ...	1588	716,759
Porto Maurizio ...	467	127,053
LIGURIA	2055	843,812
Cagliari	5224	393,208
Sassari	4139	243,452
SARDINIA (Island) ...	9363	636,660
Bergamo	1027	368,152
Brescia	1784	456,023
Como	1049	477,642
Cremona	670	300,595
Mantova (Mantua) ...	856	288,942
Milano (Milan) ...	1155	1,009,794
Pavia	1285	448,435
Sondrio	1260	111,241
LOMBARDIA (Lombardy)	9086	3,460,824
Belluno	1263	175,282
Padova (Padua) ...	805	364,430
Rovigo	652	200,835
Treviso	939	352,538
Udine	2483	481,586
Venezia (Venice) ...	849	337,538
Verona	1102	367,437
Vicenza	1041	363,161
VENETIA	9134	2,642,807
Bologna	1391	439,232
Ferrara	1010	215,369
Forli	716	234,090
Modena	966	273,231
Parma	1251	264,381
Piacenza	965	225,775
Ravenna	742	221,115
Reggio nell'Emilia ...	883	240,635
EMILIA	7924	2,113,828
Ancona	740	262,349
Ascoli Piceno	809	203,004
Macerata	1057	236,994
Pesaro e Urbino ...	1145	213,072
MARCA (The Marches) ...	3751	915,419

Provinces and Departments.	Area in sq. m.	Pop. on the 31st Dec. 1871.
UMBRIA.—Perugia	3719	549,601
Arezzo	1276	234,645
Firenze (Florence)	2263	766,824
Grosseto	1712	107,457
Livorno (Leghorn)	126	118,851
Lucca	577	280,399
Massa e Carrara	680	161,944
Pisa	1180	265,959
Siena	1465	206,446
TOSCANA (Tuscany)	9279	2,142,525
LATIUM.—Roma (Rome)	4552	836,704
Chieti (Abruzzo Citeriore) ...	1105	339,986
Teramo (Abruzzo Ulteriore I.)	1284	246,004
Aquila (Abruzzo Ulteriore II.)	2510	332,784
Campobasso (Molise)	1778	364,208
ABRUZZI E MOLISE	6677	1,282,982
Benevento	676	232,008
Napoli (Naples)	429	907,752
Salerno (Principato Citeriore)	2116	541,738
Avellino (Principato Ulteriore)	1409	375,691
Caserta (Terra di Lavoro) ...	2307	697,403
CAMPANIA	6937	2,754,592
Foggia (Capitanata)	2954	322,758
Bari	2292	604,540
Lecce (Terra d'Otranto) ...	3293	493,594
APULIA	8539	1,420,892
BASILICATA.—Potenza	4122	510,543
Cosenza	2841	440,468
Reggio di Calabria	1515	353,608
Catanzaro	2307	412,226
CALABRIA	6663	1,206,302
Caltanisseta	1455	230,066
Catania	1970	495,415
Girgenti	1491	289,018
Messina	1768	420,649
Palermo	1964	617,678
Siracusa (Syracuse)	1427	294,885
Trapani	1214	236,388
SICILIA (Sicily)	11,289	2,584,099
KINGDOM OF ITALY	114,288	26,801,154

remarkable either for their wild romantic beauties or the fertility of their soil. In the north, inclosed between the ranges of the Alps and Apennines, is a plain of vast extent, stretching from the western frontiers of Piedmont, across Lombardy, to the shores of the Adriatic. This plain, though not the largest, is perhaps the most fertile in Europe. Other plains, not of equal fertility, but still more attractive by their beauty, occur in various parts of the Italian Peninsula. Sicily is traversed by a range of mountains which is apparently a continuation of the Apennines, and Sardinia is longitudinally divided by

a mountain chain which is a continuation of that of Corsica, and attains its culminating point in the peak of Genargentu, somewhat more than 6000 feet high. See EUROPE.

RIVERS AND LAKES.—The only river of magnitude of which Italy can boast is the Po, which has a length including windings of about 450 miles. It



The Coast of Calabria, from Sicily.

begins to be navigable for small barges after the first 60 miles, but its navigation throughout meets with numerous interruptions. Below Piacenza, which it passes about 9° 40′ E., the river has to be confined by artificial embankments, which do not always suffice to protect the surrounding country from disastrous inundations, and which in consequence of successive deposits in the river bed have from time to time to be increased in height, so that in the city of Ferrara the river is now on a level with the tops of the houses. Another river of some importance, which has its mouth at no great distance from the former, is the Adige, the upper part of whose course is in Austria, in the German-speaking part of which it bears the name of Etsch. In the southern part of Italy the peninsula of which it consists is not only narrow in itself, but is divided by the central chain of the Apennines into two watersheds, each of which lies so near the shore as to leave no room for the formation of large rivers. If the streams descend directly from the mountains to the shore, their course is necessarily so short as to give them the character of mere torrents, often rising suddenly in their beds, and again as suddenly retiring within them. It sometimes happens, however, that the mountains, in ramifying, form parallel ridges, and thus give rise to longitudinal valleys, by pursuing which the course of the rivers is greatly lengthened, and their volume of course augmented. In this way the Italian peninsula, notwithstanding its narrowness, has obtained the Arno, Tiber, Garigliano, and Volturno. Numerous lakes are scattered over the surface. Many of them, independent of their natural beauties,

derive much adventitious interest from classical associations. The most important are Lakes Maggiore, Como, and Garda, the first of which is partly within the Swiss canton of Ticino, and the last partly in the Tyrol. The area of Lake Maggiore is about 85 square miles, that of Lake Como about 74, and that of Lake Garda about 135.

GEOLOGY.—Except in the ranges of the Alps in the north, and the terminating branches of the Apennines in the south, granite and the metamorphic strata are not of frequent occurrence, and occupy a very limited extent of surface. On the other hand, volcanic rocks, as might be expected in a country where volcanic agency is still active, occupy considerable tracts, particularly on the west coasts of Naples and of the Roman territory, where, by their decomposing lavas, soils of almost exhaustless fertility have been formed. The sedimentary rocks of the Italian continent, with exception of the metamorphic strata already referred to, are comparatively recent. At the bottom of the series is the Jura limestone, which is largely developed in the Apennines. The main body of it, commencing on the eastern frontiers of Tuscany, is continued in a broad zone far south into the former Kingdom of Naples. Above the Jurassic limestone, and occupying almost an equal extent of surface, is the chalk, with its accompanying rocks. The main body of it stretches east along the Gulf of Genoa, and north into Emilia, then turns southward through Tuscany, forms a long narrow belt along the eastern side of the main body of the Jurassic limestone, and, though partially interrupted, finally reaches the extremity of the peninsula, where, in Cape St. Maria di Leuca, its white cliffs form the eastern entrance of the Gulf of Taranto. In the north of Naples a large tract, of a somewhat oval form, lies completely inclosed by the Jura limestone. The next strata in the ascending series belong to the tertiary period, and consist of sandstones, travertine, and marl. These rocks occupy a considerable portion of Tuscany, and of the central part of Piedmont between Turin and Alessandria, but receive their chief development on the east coast, where, without attaining much width, they stretch without interruption from the neighbourhood of Rimini to the north-west extremity of the spur. Here the main body, spreading out, is continued south-south-east, and forms the greater part of the shore of the Gulf of Taranto. Another branch, still skirting the east coast, reaches its extremity in the Gulf of Taranto. Above all the ancient strata now mentioned are immense diluvial and alluvial deposits, still in course of gradual augmentation. Of these partial tracts are found both on the coast of Tuscany and the maritime provinces on the west near Rome, particularly the Pontine Marshes; but they are insignificant in comparison with the space which they occupy in the luxuriant plains of Lombardy, not only forming extensive flats along the northern shores of the Adriatic, from the Gulf of Trieste to the Gulf of Venice, but filling the greater part of the basin of the Po. The Euganean Hills near Padua and the Albanian Hills near Rome are of volcanic origin; and Vesuvius near Naples, Etna in Sicily, and the Lipari Islands are still active centres of volcanic action, Stromboli, in the group of islands just mentioned, being in a state of almost incessant eruption.

CLIMATE.—The peninsula in its southern part resembles Africa more than

Europe. It has the dry and burning climate of Africa, as well as the sirocco which blows on its coasts, and resembles the simoom of that continent. In the continental part of the country the neighbourhood of the Alps, the abundance of

Etna during the eruption of 1771.

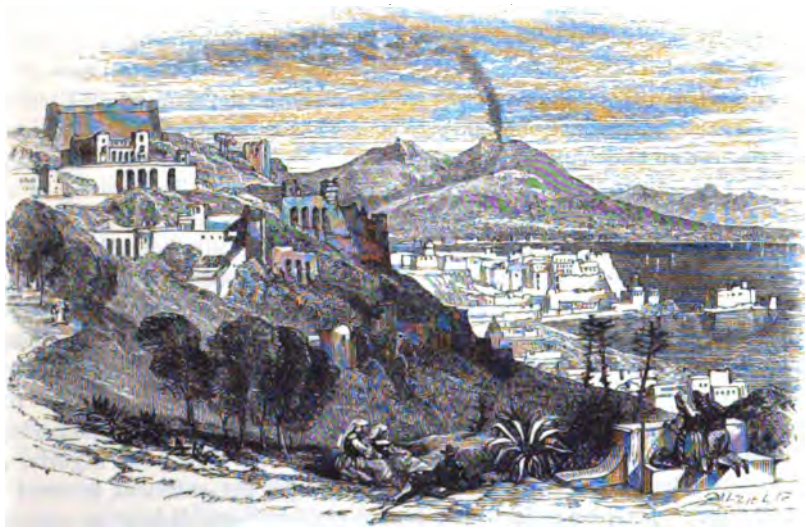
water-courses, and the direction of the fine valley which opens on the Adriatic are all circumstances which serve to maintain a delightful temperature. Yet this region is at times extremely cold. The mean temperature of the year is 54° F. at Siena, 58° at Lucca, 60° at Rome, 61½° at Naples, and 67½° at Catania. The climate of Italy is generally salubrious, but there are numerous exceptions to this character. In the north the lagoons and the rice-plantations of the basin of the Po give rise to exhalations which engender fevers. In Central Italy the Maremma of Tuscany, the Campagna of Rome, the Pontine Marshes, and the environs of Volturno, produce miasmata which infect the air, especially during the night.

VEGETATION AND AGRICULTURE, &c.—This forms the chief support of the population, and the land is very productive in almost all parts of the kingdom, although it is not everywhere equally well cultivated. The best cultivation, aided by a system of irrigation nowhere surpassed or even equalled, is found in Lombardy, Venetia, Piedmont, Tuscany, and the parts of Emilia adjoining the Po. The most neglected parts of the country in point of cultivation are the islands of Sicily and Sardinia. The systems of land tenure are very various. Peasant proprietors form about 25 per cent of the whole agricultural population, and are most numerous in Piedmont and Liguria; about 16 per cent (chiefly in middle Italy) are tenants paying half or more than half the produce to the landlord; above 2½

per cent (chiefly in the Neapolitan provinces) are tenants paying a fixed rent; and about 35 per cent are day labourers, or labourers hired for a longer period. About 85 per cent. of the surface of Italy is productive, and 15 per cent. unproductive. Of the productive land again about 41 per cent consists of arable land and vineyards, 21 per cent of meadows and pastures, 5 per cent of olive and chestnut plantations, and 18 per cent of forests, which do not yield timber sufficient to supply the home demand. The most fertile land in the kingdom is in the Lombardo-Venetian plain, where the meadows are mown six times in the year. Italy may be divided into four agricultural zones or regions:—1, the olive, orange, and citron region, embracing Sicily and Sardinia, the Neapolitan provinces except the Abruzzi, and the part of the coast of Liguria called Riviera di Ponente; 2, the region of olives and pines, embracing the Abruzzi, Umbria, Tuscany, and the part of the Ligurian coast called Riviera di Levante; 3, the vine and oak region, embracing Lombardy, Venetia except the province of Udine, the provinces of Parma, Piacenza, Modena, Novara, Alessandria, and Lomellina, now part of the province of Pavia; 4, the vine and chestnut region, comprising the two large Piedmontese provinces of Turin and Cuneo, and the province of Udine in Venetia. All kinds of cereals are cultivated. Rice and maize are produced in great quantities for exportation. The wheat produced in the country, on the other hand, is not sufficient to supply the demand at home, but is of excellent quality. Among plants used in commerce and manufactures the following are grown:—Hemp and madder, which are articles of export, flax, tobacco, hops, and rape in small quantities, saffron, cotton (in the level districts of the province of Salerno, and of Calabria, Sicily, and Sardinia), and sugar-cane in Sicily and Sardinia. The commoner kinds of fruit-trees are the objects of attention everywhere, and the cultivation of southern fruits is carried on particularly in the Neapolitan and Sicilian provinces, and in Sardinia, and furnishes large quantities for export. Chestnuts are frequently used as a substitute for bread. In the cultivation of the olive Italy surpasses all other European states; so that, although the home consumption of olive-oil is very large, there remains a considerable quantity for exportation. There is also a very large production of wine. The average annual production of olive-oil is about 35,000,000 gallons; that of wine about 666,000,000 gallons, or nearly a half of that of France. At the present day the wines of Italy are admittedly inferior to their ancient reputation. Upon this a French writer remarks that "while the inhabitants of less favoured countries employ their industry in selecting the best shoots and protecting them from the intemperance of all seasons, the Italians, accustomed to see the vine grow almost spontaneously and everywhere bear fruit which attains complete maturity, do not seek to improve the advantages of their situation, and sure of a sufficient vintage neglect this plant even in those districts where the quality of its products invites some care. The vines yield many wines, among which the liqueur wines are distinguished for their good quality; but those which serve for daily use cannot enter into competition with those of France. The most of them are at once sweet and harsh, often coarse, and although they appear to combine much body and strength they do not easily bear transport, and deteriorate in little time, even without being

removed to a distance. Their bad quality proceeds not only from the want of care shown in the cultivation of the vines, but also from the bad processes employed in the manufacture." The most famous of the Italian red wines are those of Carmignano in Tuscany, and those of the Isle of Elba, Bari, and Ischia. The white wines of Marsala and Castel-Veterano are compared to Madeiras of the second class.

The rearing of live stock is an important industry in Italy, which exports cattle, sheep, goats, and swine. Horses are imported, and also sheep's wool.



Part of Naples and Mount Vesuvius.

The cultivation of green crops as food for cattle is scarcely known. During the summer the animals are led to the pastures, and in winter they are furnished with straw and a little hay in their stalls. The farmers do not give much attention to the improvement of their domestic animals, which have lost much of their original excellence. There is a considerable number of buffaloes in Tuscany, the Neapolitan provinces, and the provinces round Rome; and camels are perfectly acclimated along the shores of Pisa in the low-lying tracts of San Rossore. The cheese of Italy is famous, especially the Parmesan.

MINERALS.—The mineral wealth of Italy is much inferior to its agricultural resources. The most important products of the mineral kingdom are the iron of Elba, Tuscany, and Piedmont; the marbles of the Alps, and the statuary marble of Carrara and Seravezza, at which latter place a whole mountain, the Altissimo, consists of this marble; the sulphur of Sicily, whence Europe obtains the greater part of its supply of this article; the salt of Sicily, Tuscany, and the Romagna; the lead or galena of Sardinia; the copper of Volterra in Tuscany, and of Vulcano, one of the Lipari Islands. Boracic acid is also among the mineral products of Italy, which is the only country in Europe from which it is obtained. It supports a considerable industry near Volterra, where the volcanic heat of the district is

utilized to concentrate the acid from native aqueous solutions. Altogether Italy imports in metals and coal (which is the mineral in which it is chiefly deficient) nearly double the value of its export of minerals. The average value of the total mineral products of Italy is only about £4,500,000.

MANUFACTURES.—Since the consolidation of the Italian kingdom the manufactures of the country have made considerable advances, especially in the department of Tuscany and the northern provinces. They now afford support to 13 per cent of the whole population. The spinning and weaving industries in Italy are in some branches very highly developed. The most important of these are the silk manufactures, in which department Italy is in advance of all the other countries of Europe. They form one of the chief sources of the national wealth. With the exception of Abruzzi, the department of Basilicata, and the island of Sardinia, all the provinces of the kingdom take part in the preparation of the raw silk which is used in the manufacture, but this is more especially the case in Lombardy, Piedmont, and Venetia. The rearing of silk-worms is more largely carried on in Italy than in any other country in Europe. Nearly 3,000,000 spindles are employed in spinning the silk, but silk-weaving is developed to a much smaller extent. Woollen manufactures are chiefly carried on in Upper Italy. The linen and hemp manufactures employ about 500,000 persons of both sexes, hand-spinning being general where the raw material is grown; machine-spinning employs about 20,000 spindles. Hempen fabrics, which are chiefly produced in the provinces of Bologna and Ferrara, where rope-making is also important, are articles of export. The cotton manufactures, chiefly centred in Lombardy, but also carried on in Piedmont, Liguria, and Tuscany, are likewise of some consequence, although not sufficient to meet the home demand. Machine-making employs many large establishments, especially in Liguria (Genoa and the neighbourhood). Musical instruments are made in all the chief towns. Especially famous are the bow instruments of Cremona, and nowhere are violin strings made so well as in the Abruzzi. In the iron industry the department of Lombardy stands at the head; more particularly the provinces of Brescia, Como, and Milan. The town of Brescia is the chief seat of the cutlery manufactures in Italy. The manufacture of gold and silver wares is very flourishing in Rome, Milan, Naples, Genoa, Venice, and Catania, and like that of articles in bronze has long been an important branch of Italian manufacturing industry. The cities of Rome, Naples, and Florence enjoy a world-wide reputation for their cameos and mosaics, as also (along with Leghorn and Genoa) for articles of coral. Earthenware manufactures have long been carried on in Italy with the best success. The articles in terra cotta especially are remarkable for the beauty of their forms. Venice and the neighbouring island of Murano are celebrated for the manufacture of glass beads, but the other glass manufactures of Italy do not nearly suffice for the home consumption. In the department of chemical industries the production of boracic acid, already referred to under Minerals, and of tartaric and citric acids, the manufacture of soap (of great consequence in Venice), and the preparation of alizarine or madder-red at the mouth of the Sarno, may be particularly mentioned. The making of tobacco

is a state monopoly, except on the island of Sicily. The paper manufacture is very flourishing, and great advances have been made in the processes employed. The products of the manufacture have a good sale in foreign countries. In the making of straw hats and other articles in plaited straw Italy maintains the first place among the countries of Europe. The chief seat of this industry is in Tuscany (especially Florence and its environs), where it supports a great number of persons.

FISHERIES.—The sea fisheries of Italy are in a very flourishing condition, and are carried on round all the coast and in the Mediterranean to the coasts of France and Africa. A specialty of the Italian fisheries is the catching of tunnies, which is effected by means of standing-nets principally on the west coasts of Naples and Sicily as well as round the island of Sardinia. As regards the method of pursuing the fisheries, the plan of constructing ponds communicating by channels with the sea is characteristic of Italian fishermen. The fish caught in these ponds are chiefly eels and mullets, which enter them in spring in order to spawn, after which the communication with the sea is cut off and the young fish are reared for the market. Such fish-ponds are found in large numbers on the Venetian coast, also further south near Comacchio, as well as on both coasts of Naples and in Sardinia. The anchovies of Elba and Gorgona have long enjoyed a high reputation. The river and lake fisheries, in consequence of bad management, are in a far from thriving condition. In the lakes of Upper Italy considerable quantities of trout and shad are caught, and the first-mentioned fish is largely exported especially to Paris.

MEANS OF COMMUNICATION.—In proportion to its area and population Italy is not yet well supplied with the principal modern means of communication, the railway. The first line of railways in Italy was opened in 1839, but up to 1861 the increase in the railway system was slow. At the present day their total length is equal to about 1 mile for every 22 square miles of surface. The Italian system is connected with those of France, Switzerland, and Austria by three great mountain tunnels: the Mont Cenis tunnel, which is partly in French partly in Italian territory, and is nearly 8 miles in length; the St. Gothard tunnel, entirely in Swiss; and the Brenner tunnel, entirely in Austrian territory. The total length of inland navigation in Italy is only about 1900 miles, or about 1 mile for every 60 square miles of surface. The number of letters and post-cards annually carried by the Italian post-office is equal to about 6 per head of the population, the number of private telegrams to about one for every 5½ persons. The system of money, weights, and measures is the same as that of France.

COMMERCE AND SHIPPING.—The foreign trade of Italy is not very large in proportion to the size and population of the country, but is increasing. With a population more than five times as great as that of Belgium its special foreign commerce, consisting of imports for home consumption and exports of native produce and manufactures, has only about three-fourths of the value of the special commerce of that country, and the commerce in transit is comparatively trifling. The principal imports are raw cotton and cotton manufactures,

grain, unbleached, raw, or twisted silk, coal, sugar, and coffee; and among the exports by far the most important is raw and thrown silk, making up about one-fourth of the whole, and next in importance are animals, grain, and raw hemp and flax. The countries with which the foreign trade is principally carried on are France, the United Kingdom, Austria, and Switzerland, France receiving about one-third more in value than it exports to Italy, and Switzerland about four times as much as it exports to Italy, while the United Kingdom is principally an exporting country, sending to Italy nearly nine times as much as Switzerland does, while it receives from that country only about the same value as Switzerland. The reason of this is that France and Switzerland are the principal markets for Italian silk, while Great Britain furnishes a large part of Italy's wants in cotton and other manufactures, iron, and coal. The total tonnage of Italian ships of fifty tons burden and upwards is about one-seventh of that of Dutch ships of the same tonnage, or about the same as that of France, the aggregate tonnage of Italian steamers only about one-fortieth of that of British and one-fourth of that of French steamers. The chief exports from Italy to the United Kingdom are olive-oil, hemp, and chemical products. The principal Italian ports are Genoa, Leghorn, Messina, Naples, Palermo, Venice, and Catania.

RELIGION AND EDUCATION.—According to the provisions of the fundamental statute the Roman Catholic is the state religion, and to it almost the entire population (99·70 per cent) belongs. All other creeds, however, are tolerated, and adherents of all religions have equal municipal and political rights. The spiritual head of the Roman Catholic Church, the pope, has his seat at Rome. His prerogatives are regulated by the law of the 13th May, 1871, which also determines the relation between church and state. By this law the person of the pope is pronounced sacred and inviolable. The Italian government pays sovereign honours to the pope, and guarantees him a yearly dotation of 3,225,000 lire (£129,000). The pope also enjoys the possession of the palaces of the Vatican and the Lateran, and the villa of Castel Gandolfo, without being subject to taxes on their account, and these places are not put under the jurisdiction of the state. Temporary residences of the pope, as well as places where a conclave or a council is held, are protected by similar immunities. The pope is perfectly free in the exercise of his spiritual functions: and free intercourse is also guaranteed between the head of the Church and the episcopate, as well as the whole Catholic world. The ambassadors of the pope, and those accredited to the holy see by foreign powers, enjoy all the privileges granted to such functionaries by international usage. The Church has the entire right of nominating to all ecclesiastical offices and benefices. In the Kingdom of Italy there are 47 archbishoprics, 217 bishoprics, and 8 abbacies with episcopal jurisdiction. The monasteries and convents have been abolished by a royal decree dated July 7, 1866, and extended to the former Papal States, and to Rome itself, by another decree dated June 25, 1873. Among the Waldenses, who follow the religious observances of the Reformed church, and are almost the only Protestants in Italy, the highest spiritual authority is confided to a synod.

The elementary education of children is made obligatory by law, yet the attendance at the people's schools is very small. There are seventeen royal universities, namely, at Bologna, Catania, Genoa, Messina, Naples, Palermo, Pavia, Pisa, Rome, Turin, Padua, Modena, Parma, Siena, Macerata, Cagliari, and Sassari; also four free universities, namely, at Ferrara, Perugia, Camerino, and Urbino. There is besides a Papal university — the Collegio della Sapienza—at Rome. The theological faculty has been abolished in all the state universities. In each province of the kingdom there is a provincial council of education. Since the abolition of the monastic establishments

The Bridge and Castle of St. Angelo, Rome.

a great part of the property that belonged to them has been applied to educational purposes, for which the Italian parliament also votes an annual sum of £600,000. The urgency of the need for all practicable measures being used to advance the cause of popular education in Italy may be gathered from a return issued by the Italian government in March, 1870, which gives information regarding the amount of education received by the military conscripts born in 1847, and called up for active service in 1868, and shows that throughout the Kingdom of Italy the average percentage reckoned over the different provinces of the kingdom of these conscripts who were totally unable to read or write was 64·27. In the province of Girgenti it was 85·82, and in the southern provinces generally it was above 80. The lowest percentage was that of the province of Vicenza, 20·37.

PEOPLE.—The population of Italy is very diverse in origin. Even in ancient times the peninsula was inhabited by numerous tribes of totally different race—Ligurians, Etruscans, Greeks, Sabines, &c. The conquests of Rome resulted in the more or less complete assimilation of all these peoples except the Greeks, but

this unity was again destroyed after the fall of the Roman Empire by incursions and settlements of Germanic tribes (Goths and Lombards) in the north, of Byzantine Greeks in the middle (the exarchate of Ravenna), and of Arabs, Normans, and Albanians successively in the south. Considerable traces were also left among the people by the three great modern nations, Germans, French, and Spaniards, who at different times contended for the dominion of Italy. It is not surprising, therefore, that signs of this diversity of origin are to be met with in every part of the kingdom. Between the Roman and the Tuscan, the Genoese and the Venetian, the Piedmontese and the Lombard, the mountaineer of the Abruzzi and the Calabrian, the Italian of the mainland and the inhabitants of the islands, the points of distinction are numerous and striking. Nowhere,

The Ponte Santa Trinita, &c., Florence.

indeed, is there to be seen a greater variety of provincial and even local types. In general it may be said that the Italian of the north is taller than his fellow-countryman of the south, and the fair hair of many of the natives of the former part of the country bears witness to the strong Germanic infusion that exists there. But in spite of this diversity there are certain respects in which the Italian nation is more homogeneous than almost any other. In religion, as already mentioned, they are nearly quite undivided, and the language, though spoken in about twenty different dialects, is one and the same (except in a few small isolated patches) from the Alps to the furthest point of Sicily. Of all the Romance languages it is, as might be expected, the one most nearly allied to their common mother the Latin, and it is also the one most distinguished by beauty and harmony. It may be described as a softened Latin, and even its vocabulary contains a comparatively small admixture from foreign sources. Among the dialects the broadest differences are those between the northern and southern varieties. In the former consonants predominate even in the terminations of words, and the corruptions of the original Latin vocables are very considerable;

in the latter, on the other hand, vowels predominate, and the proportion of consonants to vowels in a syllable is unusually small (1·1 : 1). The literary language belongs to the latter class, and is spoken with greatest purity by the higher classes in Tuscany and the former Papal States. An Italian proverb declares the best Italian to be the language of Tuscany with the pronunciation of Rome (*la lingua Toscana in bocca Romana*). The language of poetry is to a large extent a conventional one, owing its origin to Dante and Petrarch and fixed and sanctioned by the use of centuries; but even the prose of Dante when compared with that of the present day probably exhibits fewer differences than two stages of any other language separated by the same lapse of time.

The average density of the population of Italy was in 1878 about 247 to the square mile, about the same as that of Würtemberg, and nearly a fourth greater than that of all Germany. In Lombardy the density amounted to about 380, in Liguria to about 411, in Basilicata to only 124 to the square mile. The number of Italians settled in foreign lands is estimated at less than half a million. The countries in which they are principally to be found are Egypt and the Levant, Austro-Hungary, and the South American republics (Uruguay and the Argentine Republic).

CONSTITUTION AND GOVERNMENT.—The constitution of the Kingdom of Italy is a limited monarchy, and is based upon the fundamental statute of March 4, 1848, fixing that of the Kingdom of Sardinia. The throne is hereditary in the male line of the royal house of Savoy. The king attains his majority on completing his eighteenth year. He exercises the power of legislation only in conjunction with a national parliament, consisting of two chambers. The first chamber is called the senate, and is formed out of the princes of the blood, and an indefinite number of members appointed for life by the king. The second chamber is called the chamber of deputies, the members of which are elected by a majority of all the citizens above twenty-five years of age who are in the enjoyment of civil and political rights, can read and write, and who pay in direct taxes to the state or the provincial administration not less than 40 lire (32*s.*) yearly. For the election of the members of the chamber of deputies the whole country is divided into electoral colleges or districts. The constitution of the provinces and communes is based upon the law of March 20, 1865. Each province has the right of independent administration, and the executive power is intrusted to a provincial council, the members of which are elected by the communal electors for five years, and to a provincial deputation elected by the council. In each commune there is a communal council elected, like that of the provinces, for five years, and a municipal giunta elected by the council. The head of the communal administration is the *sindaco*, who is nominated by the king for three years from the members of the communal council.

The Italian budget divides the revenue and expenditure into ordinary and extraordinary. Italian finances are far from being in a satisfactory condition, and in recent years there has invariably been a deficiency in the expected receipts, and an increase upon the expected expenditure, resulting in a regular deficit; but this deficit, in spite of the enormous increase in the expenditure, has been pretty

steadily decreasing. The progressive increase of the receipts to balance this increased expenditure has been mainly due to two causes, the establishment of new taxes and the more careful collection of the old ones. The unsatisfactory condition of the finances of Italy is due chiefly to the expensive wars which were necessary in order to establish and consolidate the unity of the kingdom, and to the increase of the public debt in consequence of the successive annexations of different portions of the Italian territory, for the present Kingdom of Italy has naturally inherited the debt of each of the separate states of which it was formed. The difficulty experienced by the Italian government in raising money to meet all its annual obligations has impelled it to resort to means which are, in some cases, extremely oppressive and unpopular (such as the tax on grinding flour),

The Market-Place, Padua.

and in other cases scarcely creditable (such as the state lotteries). Besides the general budget there is one for communes and another for provinces, both of which exhibit the same unsatisfactory relation between revenue and expenditure.

The law of June 7, 1875, makes military service obligatory on all men capable of bearing arms up to the end of their thirty-second year. The men liable to serve are divided into three categories. Those in the first category remain three years in active service (in the cavalry five years) and sixteen years in the reserve (five years at the disposal of the regular army, four years in the movable militia, and seven years in the territorial militia). Those in the second category are only required to serve a few months in the regular army in order to receive military instruction. They then remain for five years at the disposal of the regular army; after that they are enrolled for four years in the movable militia, and finally serve ten years in the territorial militia. Those in the third category serve only in the territorial militia. The annual contingent required for military service is 140,000 men, of whom 65,000 are assigned to the first category, 30,000 to 35,000 to the second, and about 40,000 to the third. The whole kingdom

forms sixteen military territorial divisions. Similar arrangements are in force for the manning of the navy, the principal station of which is Spezzia.

CHIEF TOWNS.—In the century preceding the Christian era the number and magnificence of the Italian towns are celebrated by Vergil in his Georgics, and what was true then is equally true now. At the present day nearly half the population of the Kingdom of Italy live in towns containing more than 2000 inhabitants, and there are about fifty towns with upwards of 20,000 inhabitants and eight with upwards of 100,000. The most populous city in Italy is Naples, but the capital of the kingdom is Rome, "the Eternal City," the ancient metropolis of the Roman Empire, formerly the capital of the States of the Church, still

Rome, the Forum and Modern Capitol.

the residence of the pope, and for centuries the capital of Christendom. It is situated on both banks of the Tiber about 13 miles from its mouth, and is surrounded by a wall, of which the portion on the left bank is a restoration of the walls of Aurelian, while the portion on the right bank, inclosing a much larger area than was embraced by the corresponding portion of ancient Rome, was built in the first half of the seventeenth century. Of the district on the left bank only the north-western portion, that is, the ancient Campus Martius with the Quirinal, Viminal, and Capitoline hills, is occupied by the modern city; while the other four hills of the ancient Servian city, the Esquiline, the Cælian, the Aventine, and the Palatine, with the spaces within and around them, covering a large extent of ground to the south and east of the present city, have no human habitations, except a few convents and some villas no longer tenanted, and are occupied for the most part by market-gardens and vineyards. The Pincian Hill on the north (which was not included in the Servian city) is laid out in walks and public gardens. Since the transference of the seat of government to Rome in 1871 the increase of the city to the east (over the Esquiline Hill and the hitherto unoccupied parts of the Viminal and Quirinal) has been very rapid.

Within the limits of the city the river has a length, including windings, of rather more than three miles, and a breadth varying from 200 to 300 feet. The banks are unprovided with quays or even protecting walls, and being very low are often overflowed, especially in winter, when the waters of the Tiber sometimes submerge the lower parts of the houses occupying the ancient Campus Martius as far as the Corso, which is the great street running through the middle of the city from north to south. The difficulties in the way of preventing these disasters are so great that Italian engineers have hitherto been unable to cope with them, although various projects have been devised with that object. The places of note, both ancient and modern, within the walls of Rome are too numerous for even the most rapid survey. It is enough to mention that the pope's part of the city, including the cathedral of St. Peter's and the palace of the Vatican, is on the right bank of the river, while the principal palace now occupied by the King of Italy stands on the Quirinal on the left bank. The population of the city in 1871 was 220,000.

Naples (*Napoli;* 416,000), the most populous of the cities of Italy, is at the same time one of the most modern, its prosperity dating only from the sixteenth century, though even in the thirteenth it had been made the capital of the Kingdom of Naples by Charles of Anjou. It stands on the west coast of Italy about 118 miles south-east of Rome, and rises on hills above a bay of the same name to the height of upwards of 300 feet. It is above all things celebrated for the magnificence of its site, but this magnificence is confined to the external aspect, for few large towns are so poorly furnished with fine buildings, and except in the west, where the Chiaja, the finest quay in the world, fronts the bay, the interior of the town is very irregular in construction, consisting of narrow crooked streets with houses of from five to eight stories, and swarming with a lower class population, who live to a large extent in cellars and are more densely crowded together than in any other capital in Europe. The University of Naples was founded by the emperor Frederick II. in 1224. A few miles to the east of Naples are the two buried cities of Herculaneum and Pompeii, from the disentombment of which in modern times so much has been learned regarding the mode of life of the ancients at the time of the eruption of Mount Vesuvius by which the cities were overwhelmed (79 A.D.).

Milan (*Milano;* 199,000, or, including the suburbs which were united to the town in 1873, about 260,000) lies in the plain of Lombardy, between the Olona and the Lambro, on three canals by which the northern lakes are brought into communication with the Po, and at the meeting-place of the great Alpine roads over the Simplon, the St. Gothard, the Splügen, and the Stelvio. It is an ancient town of Celtic origin, and in Roman times bore the name of Mediolanum. In 1162 it was completely demolished by the emperor Frederick Barbarossa, and has more than once since experienced similar disasters, but has on each occasion been rebuilt with greater care than before. Its great ornament is its cathedral, entirely constructed of white marble. The building was commenced in 1386, and is not yet finished in all its parts, the work having undergone several protracted interruptions. In a rock-crystal sarcophagus in a chapel below the cathedral

repose the remains of St. Charles Borromeo, the patron of Milan, of which he was archbishop in the sixteenth century. As a seat of industry Milan is chiefly noted for its silk manufactures. From the thirteenth to the early part of the sixteenth century Milan was the capital of a duchy first belonging to the family of Visconti, afterwards to that of Sforza.

Turin (*Torino;* 192,000), originally the chief town of a Gallic tribe, afterwards erected into a Roman colony under the name of Augusta Taurinorum, and in modern times first the capital of the Kingdom of Sardinia, and then, from 1860 to 1865, of all Italy, is situated on the left bank of the Po, about 13 miles east of the Alps, at the height of 700 feet above the level of the sea. It is the most regularly built of the large towns of Italy. Its streets are lined with a double row of arcades running along the foot of the houses, which are all adorned with balconies. Its university, founded in 1405, is one of the most advanced and most largely attended in Italy Turin is an important seat of commerce and industry, and though no longer the seat of government, still continues to increase in prosperity Palermo (186,000), situated on a fine bay on the north coast of the island of Sicily, is the largest town in that island and the fifth in magnitude in the Kingdom of Italy. The town is of Phœnician origin, and in consequence of subsequent settlements of eastern nations in Sicily still preserves something of an eastern character both in its population and its buildings. In ancient times it was called Panormus, and it was made by the Carthaginians the principal station of their fleet. Its commerce is chiefly in the hands of English, Genoese, and Leghorn firms. Florence (*Firenze;* 167,000), formerly the capital of the Grand-duchy of Tuscany, and from 1865 to 1871 of the Kingdom of Italy, lies on both banks of the Arno at the bottom of a spacious and charming valley. Like Rome it is remarkable for the number of its churches and palaces, some of which are splendid structures. The cathedral, erected between the end of the thirteenth and the end of the fifteenth century, and surmounted by the magnificent dome of Brunelleschi, is entirely coated with black and white marble, and so also is its campanile, the celebrated tower of Giotto, a veritable gem of architecture. Opposite the cathedral is the Bap-

Milan, the Cathedral.

tistery of St. John, adorned by three gates in bronze, two of which, designed by Ghiberti, were said by Michel Angelo to be worthy of being the gates of Paradise. Among the palaces of Florence the most celebrated is the Palazzo degli Uffizii, which contains the magnificent gallery of the Medici, one of the richest collections of pictures in the world, not to speak of the engravings, drawings, bronzes, gems, cameos, and antiquities of various kinds, which it also comprises. Florence is likewise celebrated as the birthplace of an extraordinary number of eminent men, among whom may be mentioned Dante, Petrarch, Boccaccio, Guicciardini, Lorenzo de Medici, Galileo, Michel Angelo, Leonardo da Vinci, Benvenuto Cellini, and Andrea del Sarto. Genoa "the Proud" (*Genova;* 130,000), rising in terraces above the gulf of the same name, presents, especially when viewed from the sea, a very striking aspect. At the present day, as in the middle ages, Genoa owes its prosperity to its commerce and industry, being now the principal port in Italy. Its manufactures are very varied, but the chief are silk, velvet, and cotton. The factories are mostly situated in the large suburb of San Pier d'Arena. From the commencement of the twelfth century Genoa was practically independent of the German Empire, and after establishing its dominion over its own coast, subjugated Corsica in the thirteenth century. In the thirteenth and fourteenth centuries it was the great rival of Venice, but its political influence declined after its defeat by the navy of the latter power at Chioggia in 1381. About the end of the fifteenth century it was obliged, in order to defend itself against internal dissensions, to place itself under the protection of the masters of Lombardy, at first, namely, under that of the dukes of Milan, then under the German, French, and Spanish rulers who succeeded them in turn. In the eighteenth century Corsica threw off the yoke of the Genoese, and in 1814 the Congress of Vienna assigned the town and district to Piedmont. Venice (*Venezia;* 128,000), the Queen of the Adriatic, as it was formerly called, and once the successful rival of Genoa, is situated in the northern part of the lagoons which stretch along the coast of the Adriatic for about forty miles. The greater part of the town, which, when seen from the mainland, appears to rise out of the sea, is built upon the island of Rialto, and

The Ponte-di-Rialto, Venice.

intersected by a multitude of canals, some of which are accessible to sea-going vessels, though the chief means of communication in all of them is the peculiar kind of boat called a gondola, which is rapidly propelled by gondoliers. The centre of the splendours of Venice is the famous Piazza of St. Mark, the chief ornaments of which are the church of St. Mark with its five cupolas, 500 marble columns, and rich mosaics, a building which is now, in spite of the protests of lovers of art, undergoing restoration at the hands of the magistracy of Venice, and the former palace of the doges, built in the fourteenth century in the style of architecture known as Venetian-Gothic. It is now used for ceremonies of state. Though more declined than Genoa from its former grandeur Venice is still the principal Italian port on the Adriatic. The first settlement on the site of the present city of Venice appears to have been made in the ninth century, and in the course of the middle ages this settlement grew to be a powerful independent state, with a republican or rather oligarchic form of government, and a dignitary called a doge for its nominal head. So powerful had this state become at the end of the fifteenth century that it possessed, in addition to almost the whole of Venetia (including the present Lombard provinces of Bergamo, Brescia, and Crema), Dalmatia, the Ionian Islands, Candia, Cyprus, and a number of places on the Illyrian coast. In 1797 the republic, already greatly enfeebled, was overthrown by Napoleon, and in 1814 all its Italian territory was assigned to Austria, from which power it was recovered by Italy only in 1866.

Among towns of less magnitude a few others require notice on account of their historical importance or for other reasons. In Venetia there are two such towns, Verona and Padua. Verona (60,000), on the Adige, in the west of the territory, is strongly fortified, being the head of the Quadrilateral, a group of four fortresses by which Austria kept in subjection her former Italian possessions. The other three are Mantua, Peschiera, and Legnago. Verona was the capital of the kingdom of Theodoric the Great (the Dietrich von Bern of the Nibelungen Lied) at the beginning of the sixth century. It is the birthplace of Cornelius Nepos, Catullus, Pliny the Elder, Vitruvius, Paul Veronese, and others. Padua (*Padova;* 45,000), the Patavium of the Romans, stands on the Bacchiglione, about 23 miles west by south of Venice. Its university, founded in 1228, rivalled Bologna in the middle ages as a seat of the teaching of jurisprudence, and is still one of the most flourishing universities in Italy. Bologna (89,000), in the Emilian Provinces, between the Reno and Savena, is the Felsina of the ancient Etruscans and the Bononia of the Romans, and is the seat of a university which was famous before the year 1200, and at some periods of the middle ages numbered as many as 12,000 students. Modena (31,000) and Parma (45,000), further west in the same provinces, were formerly the capitals of independent duchies (the latter including Piacenza) which subsisted till 1859. Leghorn (*Livorno;* 81,000), in Tuscany, ranks third among the Italian ports, and is the only large town in Italy of modern origin. In the sixteenth century it was merely an insignificant anchorage, and it was converted into a thriving port by the Medici, who acquired it from Genoa. Its trade is principally with the Levant. More than a fourth of the inhabitants are Jews. Pisa (26,000), about

13 miles north-east of Leghorn, numbered at the time of the crusades not less than 150,000 inhabitants, and at one time disputed the dominion of the sea with Genoa, and even for a time held under its sway the islands of Corsica, Sardinia, and Majorca. The signs of its former grandeur are still numerous. The town is surrounded by old walls and moats, within which are numerous gardens and cultivated fields studded with the ruins of convents. Among its old buildings the most noteworthy is its venerable cathedral, in the Tuscan style of the eleventh century, and to the east of it is the famous leaning tower of Pisa, erected in the latter part of the twelfth century. Siena (23,000), about 45 miles south-east of Leghorn, is another decayed town. It is the Sena Julia of the Romans, and in the middle ages, when it contained at least 100,000 inhabitants, was at the head of the Ghibelline party. In Sicily the towns next in importance to Palermo, already mentioned, are Messina and Catania. Messina (70,000), on the strait of the same name, was the capital of the island till the close of the seventeenth century, and though less than half the size of Palermo is still the principal seat of commerce and industry in Sicily. It was entirely destroyed by the terrible earthquake of 1783. Catania (83,000), about the middle of the east coast of the island, was founded by Greeks of Naxos in the eighth century before Christ. It lies near the foot of Mount Etna, the lava from which has, on the one hand, covered the surrounding plain with a soil of remarkable fertility, but, on the other hand, has almost completely choked up its fine harbour (which since 1693 has been accessible only for small vessels), and has more than once threatened the city itself with destruction.

The Leaning Tower, and Apsis of the Cathedral, Pisa.

HISTORICAL SKETCH.—The changes that have taken place in the distribution of the territory of Italy are too numerous and complicated for us to be able to give anything but the most general summary of them. In ancient times the whole of the peninsula with the islands of Sicily, Corsica, and Sardinia, was gradually subdued by Rome, the conquest being completed by the end of the third century B.C. For more than six centuries and a half Italy remained subject, first to the Roman Republic and then (from the closing years of the first century B.C.) to the Empire, but the latter part of this long period was a time of disorganization. At last, in 476 A.D., the last of the Roman emperors of the West was deposed by the leader of the German troops in the Roman pay,

and with this act the western Roman Empire is held to have come to an end. Goths, Byzantine Greeks, Lombards, and Franks now succeeded one another as masters of the whole or part of Italy (493, 553, 568, 755); and in consequence of the Frankish conquest the whole of North and Middle Italy was included in the German Empire in the course of the tenth century. (See GERMANY.) During the following centuries the towns and districts of this portion of the country gradually made themselves independent of the empire, and either formed themselves into separate republics or fell under the power of princes bearing various titles (duke, marquis, doge, &c.). A large part of Middle Italy at the same time was under the dominion of the popes, who claimed to have received from the Frankish king Pepin in the middle of the eighth century a grant of what was called the Exarchate of Ravenna, that is, the portion of Italy then in the hands of Byzantine Greeks and governed by a ruler bearing the title of exarch, who resided at Ravenna. By the tenth century the popes were fully established in this dominion, which was afterwards enlarged on several occasions. In Southern Italy there were in the time of Charles the Great several independent states. In the ninth century this part of the peninsula, as well as Sicily, was overrun by Saracens, and in the eleventh century by Normans, who ultimately founded a kingdom which embraced both Lower Italy and Sicily, and which, though it more than once changed masters, continued to exist as an undivided kingdom till 1282. In that year Sicily was separated from the portion of the kingdom on the mainland in consequence of the rising known as the Sicilian Vespers, and it remained separate till 1435. It was again separate from 1458 to 1504, when both divisions were united with the crown of Spain, the island of Sicily having been united with that of Aragon since 1409. With Spain the kingdom remained till 1713, when Naples and Sicily were divided by the Treaty of Utrecht, the former being given to Austria, the latter to the Duke of Savoy. In 1720 they were again united under Austria, but in 1734 were conquered from Austria and passed under the dominion of a separate dynasty belonging to the Spanish house of Bourbon; but from the latter date it has shared the fortunes of the other part of the Kingdom of Naples or the Two Sicilies. Numerous changes took place in the map of Italy during the career of Napoleon, and according to an act of the Congress of Vienna, dated June 9, 1815, the soil of Italy was parcelled out among the following states:—1. The Kingdom of Sardinia, consisting of the island of Sardinia, Savoy, and Piedmont, to which the Genoese territory was now added. 2. Austria, which received the provinces of Lombardy and Venetia, which had previously been acquired by her either before or during the time of Napoleon. 3. The Duchy of Modena, consisting of Modena, Reggio, Mirandola, Massa, and Carrara. 4. The Duchy of Parma, including Piacenza. 5. The Grand-duchy of Tuscany, to which was now added the Stato dei Presidii with some other territories. 6. The Duchy of Lucca. 7. The States of the Church, comprising Latium, Umbria, the Marches, and Romagna. 8. The Kingdom of the Two Sicilies. 9. The Republic of San Marino, between the Marches and the Emilian Provinces. 10. The Principality of Monaco, in the province of Nice. In 1847 the Duchy of Lucca fell to Tuscany, but with this exception Italy continued to be divided as just described till the

time of the movement which resulted in the formation of the Kingdom of Italy. In 1859, after the war of the French and Sardinians against Austria, the latter power was compelled to cede Lombardy to Sardinia, and in the same year Romagna, Modena, Parma, and Piacenza were annexed to that kingdom, which was, however, obliged to cede the provinces of Savoy and Nice to France. In 1860 the Marches and Umbria, Tuscany, and the Kingdom of Naples were added to the territories of the King of Sardinia, who, on the 14th of March, 1861, assumed the title of King of Italy. In 1866, after the Austro-Prussian war, in which Italy was an ally of Prussia, Italy recovered the Venetian provinces, and finally in 1870, during the Franco-German war, the remaining States of the Church were occupied by the Italians and Italy thus extended to its present limits. Of the states mentioned as existing at the time of the Congress of Vienna the Republic of San Marino alone still subsists as an independent state within the frontiers of Italy. The Principality of Monaco still retains its independence, but since the cession of Nice to France has been inclosed by French territory.

SAN MARINO.

San Marino is the name of a minute republic occupying the slopes of Mount Titano, a hill about 2500 feet high belonging to the range of the Apennines and situated a short distance to the south-west of Rimini. According to the legendary account the republic owes its origin to a Dalmatian mason, who, being a Christian, sought a refuge from the persecutions of Diocletian on this almost inaccessible height. In process of time a monastery was formed here, and round the monastery a commune grew up, which in the thirteenth century formed itself into a republic, and by placing itself in succession under the protection of the Holy See, Napoleon Bonaparte, and the King of Italy, has managed to escape all vicissitudes from that time to this. Its present constitution dates from 1847, and according to it the supreme authority is a grand council of sixty members, one-third of whom are nobles, and the remainder town and country proprietors in equal numbers. This council appoints all committees as well as the two "captains" (*capitani*), the heads of the administration, who are changed every six months. The annual revenue of the republic, which maintains a militia of nearly a thousand men, and even has an order of San Marino, is about £4400. The town of San Marino, having a population of about 1600, stands on a precipitous site on the south slope of the hill, and is accessible only on foot or on horseback, there not being even a road up to it. Area of the republic, 22 square miles; population, 7816.

SPAIN.

Spain (Spanish, *España*) is a state in the south-west of Europe, forming the far greater part of the Spanish Peninsula, and including the Balearic and the Canary Islands. Exclusive of these islands it lies between lat. 36° and 43° 46′ north; lon. 9° 10′ and 3° 15′ east. It is connected with the Continent on the north-east by the chain of the Pyrenees, separating it from France; and is bounded on other sides by the sea. The greatest length measured due north and south is

Cape Trafalgar, from the shores of Marocco.

from Cape Penas to Tarifa, 540 miles; and the greatest breadth measured due east and west, from Cape Creux to Cape Hombre, Vigo Bay, 620 miles.

POLITICAL DIVISIONS.—The table on the next page gives the area and population of the provinces into which Spain is now divided, as well as of the ancient provinces (mostly old kingdoms and no longer administrative divisions).

PHYSICAL FEATURES.—The surface of Spain is as much diversified as that of any other country of the same extent in Europe, but its characteristic feature is its centre table-land, an account of which is given in the general notice of EUROPE. Besides the mountain ranges stretching east and west which bound or traverse the table-land, there is the magnificent chain of the Pyrenees, which, though partly belonging to France, presents its boldest front to Spain, and has its loftiest summits within it. The highest peak in this range, as mentioned under EUROPE, is La Maladetta or Pic de Netou (11,165 feet), but the highest peak in Spain is the Cumbre de Mulahacem (11,705 feet), belonging to the Sierra Nevada in the south. This latter chain presents some of the wildest scenery in Europe. Masses of snow cover the side of the mountains for miles; along their crests enormous crags of gneiss and mica schist, utterly destitute of any trace of organic life, protrude at intervals; and on the north side jagged cliffs of slate

Provinces.	Area in English sq. m.	Pop. at census of Dec. 31, 1877.
Madrid	2992	593,775
Toledo	5610	334,744
Guadalajara	4870	201,288
Cuença	6750	237,497
Ciudad-Real	7862	260,641
New Castile	**28,084**	**1,627,945**
Burgos	5650	332,461
Logroño	1945	174,425
Santander	2110	235,299
Soria	3835	153,654
Segovia	2710	149,961
Avila	2980	180,457
Palencia	3125	180,785
Valladolid	3042	247,453
Old Castile	**25,397**	**1,654,495**
Leon	6165	350,210
Zamora	4135	250,004
Salamanca	4940	285,500
Leon	**15,240**	**885,714**
Oviedo...	4090	576,352
Asturias	**4090**	**576,352**
Coruña	3100	595,585
Lugo	3786	410,387
Orense	2736	388,835
Pontevedra	1765	451,946
Galicia	**11,387**	**1,846,753**
Badajos	8686	432,809
Caceres	8012	306,594
Estremadura	**16,698**	**739,403**
Seville...	5294	505,291
Cadiz	2808	430,158
Huelva	4120	210,641
Cordova	5190	385,582
Jaën	5184	422,972
Granada	4936	477,719
Almeria	3300	349,854
Malaga	2822	500,231
Andalusia	**33,654**	**3,282,448**
Saragossa	6630	400,266
Huesca	5876	252,165
Teruel	5491	242,296
Aragon	**17,997**	**894,727**
Murcia	4476	451,611
Albacete	5970	219,122
Murcia	**10,446**	**670,733**
Valencia	4350	679,030
Alicante	2096	408,154
Castellon	2445	283,961
Valencia	**8891**	**1,371,145**
Barcelona	2984	835,306
Tarragona	2500	330,105
Lerida	4772	285,297
Gerona	2270	299,002
Catalonia	**12,526**	**1,749,710**
Navarra	**4045**	**304,184**
Viscaya (Biscay) ...	848	189,954
Guipuzcoa	726	167,207
Alava	1203	93,191
Basque Provinces ...	**2777**	**450,352**
Balearic Islands ...	1735	289,035
Canaries	2808	280,388
Islands	**4543**	**569,423**
Total	**159,775**	**16,623,384**

sometimes sink down in perpendicular precipices from 3000 to 6000 feet high. The surface of Majorca (in Spanish *Mallorca*) consists mainly of an extensive plain with numerous protuberances, terminating in the north-west in a line of mountains which culminate in the peak of Torellas about 4700 feet high. In the other Balearic Islands the elevations are inconsiderable. At Arta on the east side of Majorca there is one of the most remarkable stalactite caverns in the world. The **rivers** of Spain are numerous, and several of them pursue courses of several hundred miles, draining large tracts of country. The total area of the basin of the Douro (Spanish, *Duero*) is about 34,000 square miles; of the Tagus (Spanish, *Tajo*), about 28,400; of the Guadiana, about 25,700; Ebro, 25,500; Guadalquivir, 20,000; and Minho, 15,700. It must be remembered, however, that the Douro and Tagus are more Portuguese than Spanish rivers, and that the Minho and Guadiana are also partly shared by Portugal. The **lakes** of Spain are few and

unimportant. Considering the number and height of the mountain ranges, it is remarkable that Spain does not possess a single mountain-lake deserving of notice. Its only considerable expanses of standing water are the lagoons which line part of its southern and western coasts, and are not only devoid of beauty, but often poison the air with pestilential vapours.

GEOLOGY.—Almost all the mountain ranges have a nucleus of granite, overlaid by crystalline schists. This is particularly the case in the Pyrenees, the mountains which separate the two Castiles, and the basins of the Douro and Tagus, the Sierra Morena, and the Sierra Nevada. In the last the granite and schists often give place to immense masses of serpentine. The mountains of Asturias consist almost entirely of carboniferous limestone and sandstone; and the same formation is largely developed in the Sierra de Gador, and in the deep valleys of the Alpujarras south of the Sierra Nevada. Secondary rocks, still higher in the series, consisting of chalk and the accompanying strata, often overlie those of the carboniferous limestone, and have their largest development in the districts which border the east coast. They also form great part of the ridges which intervene between the plain of La Mancha and the Mediterranean. Tertiary formations are found partly on the higher table-land in Old Castile, where they consist chiefly of marls and gypsum, and partly on the plains of Valencia, Alicante, Murcia, Cartagena, Aguilar, and Granada. They also fill several valleys, among others, those of the Segura, Lorca, Lower Ebro, and Guadalquivir.

Cavern at Arta, Majorca.

CLIMATE.—This, owing to the physical configuration of the surface, varies much in different localities. On the elevated table-land it is both colder in winter and hotter in summer than usual under the same latitude. In Madrid, which is situated upon it, the mean temperature of winter is about 47°, of spring 65°, of summer 86°, and of autumn about 66°. In the hottest month the mean temperature sometimes rises above 89°, and in the coldest falls below 40°. The mean annual temperature is between 65° and 66°. On the table-land in summer the sky is generally clear and cloudless, and rain seldom falls, but in winter it both rains and snows frequently. On the north coast the climate is damp, and injury is often suffered from a superabundance of moisture. In the north-west, in

Galicia, a piercing wind, which the Castilians call *gallego*, often blows. In these quarters, in severe and rainy winters, the cold is occasionally extreme, and the olive and other southern fruits cannot be successfully grown. In the south-east districts, particularly in Murcia and Valencia, a kind of perpetual spring prevails; on the contrary, in the south and south-west, in Granada and other parts of Andalusia, the climate is almost African, and a wind called *solano*, which withers up vegetation and enervates the animal frame, often blows for two weeks in succession. In the west the climate is mild but variable; the summer, however, is often very hot. Snow is confined chiefly to the more mountainous districts. The climate of the Balearic Islands is on the whole mild and genial, but the island of Minorca is exposed to violent winds from the north, which have a very injurious effect on vegetation.

VEGETATION, AGRICULTURE, &c.—The proportion of productive land to the whole area in Spain is unusually small, amounting to little more than 60 per cent, leaving nearly 40 per cent waste. This is in part due to the natural sterility of a portion of the surface, a large part of the great table-land presenting a very discouraging appearance, having a thin stony soil and a covering of heath and scanty pasture. But this is by no means the whole explanation of the fact, which is partly due also to want of attention, for there are extensive tracts capable of being advantageously cultivated which are yet left almost in a state of nature, to be roamed over by cattle, sheep, goats, and swine. About 26 per cent of the whole surface consists of arable and garden land, nearly 3 per cent is in vineyards, 1·7 per cent in olive plantations, nearly 14 per cent in meadows and pasture, and a little more than 16 per cent under wood. The finest agricultural district is Valencia, where both rice and corn are grown far beyond the wants of the actual population, and furnish large supplies to those parts of the interior which are less favourably situated. After Valencia, Catalonia, Murcia, and some of the northern provinces, raise the largest quantities of grain. The more important crops are wheat, rice, maize, barley, and legumes. Hemp and flax are extensively grown in Aragon and Galicia, and esparto grows in abundance, more especially in Valencia and Murcia, where it is in extensive demand for making ropes, mats, baskets, &c., besides being exported to a very large extent. The system of agriculture pursued is far behind that of most European countries. It is true that the difficulties against which agriculture has to contend are exceptional. The rainfall is nearly everywhere defective, and to render the soil fairly or at all productive artificial irrigation is as a rule necessary. Works for this purpose have been executed on a great scale in various parts both by the government and the large proprietors; still the irrigated surface makes up only a small part of the whole productive area. The system of irrigation still in existence in Valencia was established there by the Moors. Large landed proprietors are most numerous in the provinces of Andalusia and in the former district of La Mancha (the south of New Castile), and there it is the custom to let out the lands either to single tenants or to companies of labourers for three or four years. In the remainder of the provinces of Castile and in Aragon properties are smaller, and many of the proprietors cultivate their own lands, whilst others let them to

small tenants who pay their rent as often in kind as in money. In the province of Asturias, and still more in those of Valencia, Leon, and Galicia, property is much subdivided. The total number of landed proprietors in Spain is said to be somewhat under 1,500,000. The cultivation of the vine is general, and great quantities of wine are made, both for home consumption and exportation (chiefly to Britain and America). The demand for the latter is chiefly confined to sherry and the sweet wines of Malaga and Alicante. The mountains of the Alpujarras, east of Malaga, are richly clothed with vineyards to the height of even 3000 feet. The average annual production of Spanish wine is about 440,000,000 gallons. A considerable part of the grapes grown are dried and exported in this state, especially from the port of Malaga. Hazel and pistachio nuts, walnuts, and chestnuts grow in such abundance as to form important articles of trade. In the warmer districts the olive, sugar-cane, and cotton plant are partially cultivated. The mulberry thrives well, and is largely cultivated for rearing silkworms in Valencia, Murcia, and Granada. Fruits are extremely abundant, and include, in addition to apples, pears, cherries, plums, peaches, and apricots, the almond, date, fig, orange, citron, and pomegranate; and in the lower districts of the south, the pine-apple and banana. The mountains and many tracts of the table-land are in general very scantily supplied with trees, and a want of timber, both for fuel and economical purposes, is severely felt in many quarters. The finest forests are on the western offsets of the Pyrenees and in the mountains of Asturias. The more remarkable trees are the Spanish chestnut and several varieties of oak, and in particular the cork-oak. Among domestic animals the horse, descended from breeds which the Moors had introduced, was long celebrated throughout Europe, but has in recent times declined in reputation, though Andalusia still boasts of many fine animals. The mule is generally preferred to the horse, both for carriage and draught, and is extensively reared in New Castile. Both it and the ass are generally of a very superior description. Horned cattle are generally inferior and not numerous; only in a few districts are cows kept for dairy purposes; bulls, in great demand for the national amusement of bull-fights, are reared in greatest perfection in Andalusia. The favourite stock is the sheep, a considerable proportion of which belong to the celebrated merino breed, to which almost all the other breeds of Europe are more or less indebted for improvement. Goats also are very numerous, and in their flesh, milk, and cheese furnish the favourite food of the inhabitants.

ZOOLOGY.—The zoology of Spain includes a vast number of species. Of these, however, the only large animals in a wild state are the wolf, common in all the mountainous districts, and the bear and chamois, found chiefly in the Pyrenees. In Biscay the marten is frequently met with, and lynxes, foxes, wild cats, weasels, &c., are numerous in many quarters. The chameleon is found in the vicinity of Cadiz, and monkeys haunt the rock of Gibraltar. The feathered tribes are very numerous, particularly on the coast and at the mouths of rivers; eagles are not uncommon, and among rarer visitors may be mentioned the flamingo, which is sometimes seen near Valencia.

FISHERIES.—The number of rivers and great extent of sea-coast give great

scope to the inhabitants of the water; and some important fisheries are carried on, particularly those of sardines on the coast of Galicia, and of tunnies and anchovies on the south-west coast between Cadiz and Gibraltar.

MINERALS.—The whole country teems with mineral wealth, the minerals including in greater or less quantities gold, silver, quicksilver, lead, copper, iron, zinc, calamine, antimony, tin, coal, &c. In the north (Asturias and Galicia) there are inexhaustible masses of iron ore. This ore is largely imported into Britain, and being very free from phosphorus and sulphur is excellently adapted to the Bessemer process. Iron is also abundant in the Basque Provinces. On the north coast there are important zinc mines. In the production of lead Spain surpasses all other countries in Europe. The ore is found principally in the form of galena, and the principal centres of production are Linares and Baylen in Jaen, Cartagena in Murcia, and Almeria. In the province of Huelva, in the south of Spain, are immense deposits of iron pyrites, owned principally by English companies. The principal mines are the Rio Tinto and the Tharsis, which were worked in the time of the Carthaginians and Romans. The ore contains 47 per cent of sulphur and $1\frac{3}{4}$ to $2\frac{1}{2}$ per cent of copper, both of which are extracted to profit in this country. The quicksilver mines of Almaden in the province of Ciudad-Real are unequalled for richness. Zinc is obtained chiefly in the provinces of Santander and Guipuzcoa in the north, and Murcia, Granada, and Malaga in the south. Coal exists most extensively in the province of Oviedo, and is also found in those of Burgos, Soria, Leon, Palencia (where the quality is specially good), Teruel, and Santander. The total coal-producing area is about 3500 square miles. In salt Spain is remarkably rich, the principal mines being in the provinces of Barcelona, Alicante, Gerona, and Cuenca. Sea-salt is prepared chiefly in the lagoons of the bay of Cadiz, on the banks of the lower Guadalquivir, and on the island of Iviza. In general it may be remarked, that the mining industry of Spain is very much less productive than it might be considering the extent of its resources, and the smelting of metals is still less developed than mining for the ores. Almost all the minerals of Spain were declared by a law passed in 1859 to be the property of the state, but the financial distress of subsequent years compelled the Spanish government to sell most of its mineral wealth, and the state now possesses only the quicksilver mines of Almaden and some salt-mines.

MANUFACTURES.—In the middle ages the manufactures of Spain, particularly along the coasts of the Mediterranean, were in a flourishing condition, and found an extensive demand, particularly in the Levant and other parts of the East. With the expulsion of the Moors the branches which they had specially fostered sank rapidly into decay, and have never revived. New demands, however, arose in the West, and Spain, as the mother country, reserving to herself the sole supply of the colonies, was able, for that purpose alone, to carry on a number of lucrative manufactures. The loss of these colonies, putting a sudden stop to the demand, was followed by their almost as sudden extinction. It is only in quite recent years that the manufactures of Spain have experienced a revival in certain branches, more particularly cotton spinning and weaving,

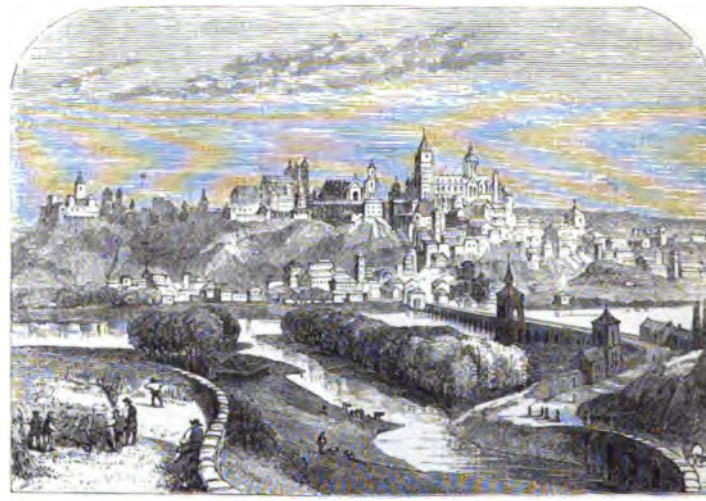
the manufacture of paper, soap, and leather, and the metal industries. The chief industrial provinces are those of Barcelona, Gerona, Tarragona, Guipuzcoa, and Biscay.

COMMERCE AND COMMUNICATIONS.—The trade labours under great disadvantages from the want of proper means of communication. The roads, except the royal roads (*caminos reales*), are generally wretched; the rivers, though numerous, are ill fitted for navigation; and though in recent times much has been done in constructing railways, much more is still required. The total length of the railways is equal to only about 1 mile for every 50 square miles of surface. In consequence of these disadvantages both the internal and foreign trade are necessarily limited, the latter hardly exceeding in value that of Sweden, a country with much less than a third of the population. The chief articles of export are wine, salt, fruits, metals and ores, oils, soap, and agricultural produce (especially wheat, wheat flour, and esparto). Among the countries sending goods to Spain France occupies the chief place, Great Britain coming next, but the latter country receives the greatest amount of exports from Spain. Of the total wine imports into the United Kingdom about two-fifths on an average come from Spain. The principal ports are Barcelona, Malaga, Cadiz, Seville, and Santander. The number of private letters and post-cards annually carried by the post-office is less than five per head of the population, the number of private telegrams about one for every twelve inhabitants.

The Leaning Tower of San Felipe, Saragossa.

MONEY, WEIGHTS, AND MEASURES.—By a decree of the Cortes in 1868 a new monetary system was introduced into Spain, according to which accounts are kept in *centimos* and *pesetas:* 100 centimos = 1 peseta = 9½*d.* sterling. At the average rate of exchange 25 pesetas = £1. The weights and measures are precisely the same as those of France, with no other change than a slight one of names, the *metre* becoming the *metro*, the *litre* the *litro*, and so on. The old weights and measures are still largely used, however. The principal are the *quintal* = 100 *libras* = 101·4 lbs. avoir.; the *arroba* for wine = 3½ imperial gallons, for oil = 2¾ imperial gallons; the *fanega* = 1½ imperial bushel.

RELIGION AND EDUCATION.—The only religion which the state recognizes, and declares itself bound to support, is the Roman Catholic. In 1837 all the convents of monks, with a few exceptions, were suppressed, and their revenues, subject to a provision for existing members, confiscated to the state. The permission to re-establish convents has since been granted, but their number is still small. In no country has the dominant religion manifested a more intolerant spirit, or been guilty of so many atrocious deeds. Under favour of the toleration granted to all creeds at the revolution of 1868, and confirmed in the present constitution, a few Protestant congregations have been formed here and there, but the immense majority of the population adhere at least in name to the state



Salamanca and the River Zurguen.

religion. The morals of the clergy have long been notorious for laxity, and the laity are said to have very generally imbibed infidel principles. Until quite recently the mass of the people were sunk in excessive ignorance. Scarcely any of the lower classes could, at the beginning of the present century, so much as read. Until 1808 public education was entirely in the hands of the clergy, but since then enactments have been passed transferring it to the care of the government, and though little money is granted from the public funds for the purposes of education, government superintendence has effected a very marked improvement. According to law primary education is compulsory, but the law is not yet very efficiently carried out. In 1878 the number of children attending the primary schools was equal to about one in eleven of the whole population, or, according to a common mode of estimating, rather more than half the children of school age. There are ten universities in Spain, namely, at Madrid, Barcelona, Granada, Salamanca, Seville, Valencia, Saragossa, Santiago, Valladolid, and Oviedo. The last, however, though called a university has only one faculty, that of law, and those of Santiago and Valencia have only those of law and medicine. From the

thirteenth to the sixteenth century the university of Salamanca was one of the most celebrated in Europe, being attended at its most flourishing period by about 14,000 students.

PEOPLE.—The average density of the population of Spain is 85 to the square mile, varying from 44 to the square mile in Estremadura to 162 in Galicia and the Basque provinces. The inhabitants consist chiefly of Spaniards proper, composed of a mixture of ancient aborigines, Romans, Visigoths, Vandals, and Suevi, but partly also of three other distinct races—Basques, occupying the provinces to which they give their name, and forming about one twenty-fourth of the whole population; Moors (*Moriscos*), who, in the general expulsion of their countrymen, found refuge in several valleys in the Alpujarras region and round Valencia, and whose descendants, unmingled with the other inhabitants, are still living there to the number of about 60,000; and Gitanos or gypsies, who are found diffused over all parts of the Peninsula. The Spaniards proper are of middle stature, well formed, of a sallow hue, sharp features, dark hair, and keen black eyes. In diet they are frugal and temperate. Their wants being thus comparatively few, are easily satisfied, and furnish no strong stimulus to exertion. Indolence accordingly is a prevailing vice, and the highest ambition generally felt is to be able to live without doing anything. In their intercourse with strangers they are reserved and taciturn, and stand much upon their dignity, afraid apparently of its being encroached upon by undue familiarity; but on finding what they conceive to be their true place properly recognized, they lay aside their restraint, form strong attachments, and become the most agreeable of companions. With their natural indolence there is a strange mixture of enthusiasm, and when their passions are once roused there are few extravagances or excesses of which they are not capable. In favourable circumstances this part of their character has often manifested itself in chivalric exploits; but when accompanied, as it too often is, by ignorance and bigotry, has led to the perpetration of numberless atrocities. One side of the national character is well pictured in the cruel sport of bull-fighting, cultivated eagerly in every part of the country, and, like horse-racing among the English, established wherever the Spaniard is located. The Basques are in all probability the descendants of the ancient Iberians, and are the same people as are still found in the south-western corner of France. The Moors are in reality of Arabic origin, and received the name of Moors from the fact of their having crossed over into Spain from Mauretania. The Spanish language, spoken not only throughout Spain except the Basque Provinces, but also in Cuba, Mexico, and a large part of South America, is one of the Romance languages, and in its grammar has kept more faithfully to the Latin inflections than even the Italian. Its vocabulary has received a considerable infusion of Teutonic and Arabic words in consequence of the settlement in the country of Teutonic and Arab tribes. One-tenth of the vocabulary is said to be traceable to each of these sources, while the proportion of Latin origin is about six-tenths. A number of different dialects developed themselves at an early date, but of these the Castilian took the lead, and came to be considered as the standard Spanish. The Basque language still remains a problem to philologists, who

have not yet been able to establish any affinity between it and any other language. It shows no trace of a connection with any Aryan tongue.

GOVERNMENT AND DEFENCE, &c.—The present constitution was proclaimed on the 30th of June, 1876, and according to it Spain is a limited hereditary monarchy. The power to make laws resides in the Cortes, and the executive power in the sovereign, who exercises it by means of ministers. The Cortes consists of two independent bodies—the Senate and Congress. The former is composed of three classes: first, senators by right of birth or office; secondly, 100 life senators nominated by the crown; and thirdly, 130 senators elected mainly by the most highly taxed inhabitants. One-half of the third class must be re-elected every five years, and the whole as often as the king dissolves that part of the Cortes. The Congress is composed of deputies elected for a term of five years by electoral colleges (*juntas*) in the proportion of one to every 50,000 of the population, and by a royal decree issued in 1878 includes deputies from Cuba in the proportion of one to every 40,000 of the free population paying 125 pesetas or about £5 annually in taxes. The various provinces, districts, and communes are governed by their own municipal laws with local administration. Every commune of at least sixty members has its own elected *ayuntamiento*, presided over by the *alcalde*. Each province has its *diputacio provincial* or parliament, whose members are elected by the ayuntamientos.

The revenue is derived chiefly from direct and indirect taxation, state monopolies and state property, and the colonies. More than a third of the revenue is required to defray the debt charges, and in recent years Spain has been unable to pay the interest of the debt in full.

According to the law of the tenth of January, 1877, military service is obligatory on all Spaniards who have completed their twentieth year. The term of service is eight years, four to be passed in the regular army and four in the reserve. Those liable for service are, however, permitted to buy themselves off, or, under certain conditions, to provide substitutes. In the case of the colonial troops the whole length of service is four years, and there is no liability to be enrolled in the reserve. The navy is recruited from the maritime population on the same conditions as the army from the inland population.

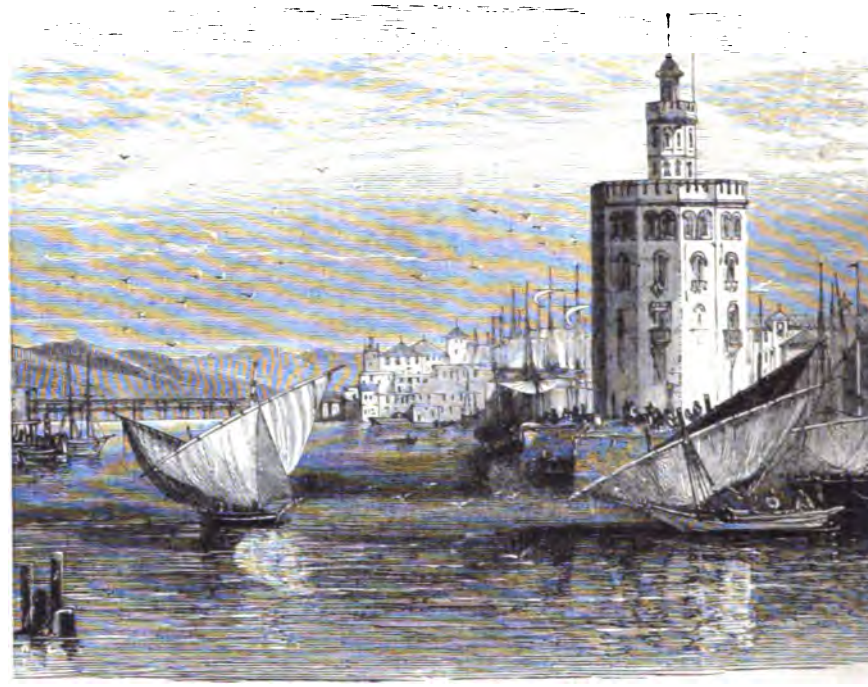
COLONIES AND DEPENDENCIES.—At one time the colonial empire of Spain was the largest in the world. In the first half of the sixteenth century the crown of Spain held dominion not only over Spain itself, but also over Sardinia, Naples, and Sicily, and part of the Netherlands in Europe, as well as over the principal West Indian Islands, Mexico, Florida, the whole of Central America, and a large part of South America chiefly on the west coast. The King of Spain of that day, who was at the same time Emperor of Germany (Charles V.), was the first to boast that he ruled over an empire on which the sun never set. All but a few of these possessions have now been lost, those in America chiefly by the revolt and secession of the colonies themselves in the present century; and the Spanish colonies and dependencies are now confined to the West Indian Islands of Cuba and Porto Rico, the Philippine and some adjacent groups of islands in the Indian Seas, and the Island of Fernando Po

with some smaller possessions on the Guinea Coast. Their total area is about 117,500 square miles; population, about 8,300,000.

CHIEF TOWNS.—Madrid, the capital of Spain and the most populous town in the country, is situated at the height of 2450 feet above the level of the sea on some hills of sand and gypsum, to the west of which flows the Manzanares, a petty tributary of the Jarama, which is itself a tributary of the Tagus. Except that it lies in the centre of the country there is nothing in its position to mark it out as a likely spot for the seat of government. The country round is far from fertile, and the stream on which it stands, so far from being navigable, is in summer quite dry. Though mentioned as early as 933, in the time of the Arabs, the town was in fact throughout the middle ages no more than an insignificant village, and it was only about the end of the fifteenth century when the sovereigns of Spain, attracted probably by the opportunities afforded by the neighbouring forests for hunting the stag, bear, and boar, began to hold their court there, and about a century later when Philip II. definitively transferred his capital thither from Valladolid. Since then it has acquired all the prerogatives and distinctions of a capital, and has increased greatly in population. Within the last fifty years its population has about doubled, and according to the most recent estimate it contained about 367,000 inhabitants. The city is built in the form of a square and is surrounded by a brick wall of about 12 miles in length. The houses are chiefly built of reddish brick, and the general aspect of the city is too uniform to make any pretension to beauty. The principal attraction of the city is its picture-gallery, one of the richest in the world in masterpieces of painting. The University of Madrid was removed here in 1836 from Alcala de Henares, where it was founded by Cardinal Ximenes in 1510, and where, at the height of its celebrity, it attracted as many as 10,000 students. About 34 miles to the north-west of Madrid, at the height of about 3600 feet above sea-level, stands the famous palace of the Escurial, an aggregate of buildings of immense extent, erected by Philip II. in fulfilment of a vow made before the battle of St. Quentin. It is dedicated to St. Lawrence, and built in the form of a gridiron, in allusion to the martyrdom of its patron saint, who is said to have been roasted to death on a gridiron.

Barcelona (216,000), on the coast of Catalonia, is the second town in Spain in magnitude, and the principal port and seat of industry. It is situated at the bottom of a bay closed on the east by the peninsula on which stands the suburb of Barcelonetta, and dominated in the north-east by a large citadel and on the south-west by the fort of Monjuich. It is a town of great antiquity and probably owes the oldest form of its name (Barcino) to the Carthaginians. Its university is the most flourishing in Spain after that of Madrid. Valencia (153,000), on the right bank of the Turia, not far from the coast of the old kingdom of the same name, is the third largest town in Spain, and the second in importance in respect of its manufacturing industries (chiefly silk, wool, and faience), and as a seat of commerce ranks next after Barcelona and Malaga among the Mediterranean ports of Spain. The surrounding district is one of the best cultivated in the country, and the gardens, trees, and shrubberies of the town itself render

it one of the most delightful places of residence in Europe. Seville (119,000), the queen of Andalusia, though still an important town, no longer possesses the importance which it did in the time of the Moors, under whom it is said to have contained a population of 300,000. It stands on the left bank of the Guadalquivir, here a noble stream, and is remarkable for its beauty, while its general aspect of gaiety and perpetual festivity has earned for it the name of the Joyous. Its streets are not wide but are very clean, and the dazzling white flat-roofed houses,



The Guadalquivir at Seville, with the Golden Tower.

adorned with arabesques, are provided, like those of the other chief towns of Andalusia, with an inner court called a *patio*, lined with arcades or porticoes, and enlivened with fountains and flower-beds. Among its monuments of Moorish times the most celebrated is the beautiful tower called the Giralda (from *girar*, to turn), so called from a female figure on the top, which, though 14 feet high and weighing 2800 lbs., veers with the slightest breeze. The Golden Tower (*Torre del Ore*), at the mouth of the harbour, and now occupied by the guardians of the port, is ascribed to Julius Cæsar. Malaga (97,000), on the south coast of Andalusia, is the second Spanish port on the Mediterranean, and its harbour is both safe and spacious. The town dates from the time of the Phœnicians. On the south-west coast of Andalusia at the extremity of a narrow tongue of land stands another ancient Phœnician town, Cadiz (57,000), the Phœnician Gadir and the Roman Gades. As a seat of com-

merce it no longer retains the importance which it had when Spain was still in possession of her South American colonies, but it still exhibits all the splendour with which it was clothed in the time of its highest prosperity. Its streets are paved with marble and lined with splendid buildings; its houses high and massive, terminating in covered terraces adorned with flowers and foliage, and surmounted by charming little belvederes (*miradores*). Jerez de la Frontera (52,000), about 16 miles north-east of Cadiz, is celebrated as the place where, in 711, the Moorish invaders of Spain gained their decisive victory over the Goths, and is also the place which has given the name of *sherry* to the white Spanish wine, the trade in which has its principal centre here.

The Fortress of the Alhambra, Granada.

Like Italy Spain possesses several towns that have sunk from a state of grandeur and opulence to one of comparative insignificance. The most striking example of this is Toledo, on the Tagus, which was first the residence of the Visigothic kings of Spain, afterwards the capital of the Castiles and even of Spain till 1560, and in the time of Charles V. appears to have had a population of 200,000, but which now contains only about 18,000 inhabitants. Toledo was in former times the seat of eighteen councils of the church, and is still the ecclesiastical capital of Spain. Its vast and splendid cathedral, dating from the sixth century, was used as a mosque during the Arab occupation. Another of these decayed towns is Cordova or Cordoba (45,000), on the right bank of the Guadalquivir, from 756 to 1236 the seat of a powerful Mussulman kingdom, and then containing, it is said, nearly a million of inhabitants. Its old walls, like those of Rome and Pisa, include within them extensive gardens and vineyards as well as houses; and the narrow lanes of the town itself still preserve a thoroughly Arab physiognomy. The decline is less striking in the case of Granada (60,000), a town possessing a delicious climate and occupying the eastern margin of what is known as the *vega* of Granada, a small but exuberantly fertile plain, watered by the Jenil and the Darro, and encircled by mountains, of which those on the south are the snowy summits of the Sierra Nevada. Granada was the residence

of the last three Moorish kings in Spain, and possesses in the palace of the Alhambra, erected between 1231 and 1338, the most celebrated monument of Saracenic architecture. Palma (50,000), a pleasant town on the south-west coast of the island of Majorca, is the chief town in the Balearic Islands. Mahon (20,000), on the island of Minorca, is situated on a picturesque creek forming one of the finest natural harbours in the world, being safe, deep, and sufficiently capacious to accommodate the largest squadrons. The town, and the island on which it stands, furnish so many colonists to the French colony of Algeria, that it is said that in no long time there will be more Minorcans in Algeria than in Minorca itself.

HISTORICAL SKETCH OF THE IBERIAN PENINSULA.—At a very early period Phœnician colonies were planted at Cadiz (Gadir or Gades) and elsewhere on the south coast of Spain, and Greek colonies at Saguntum and other spots on the east coast. In the third century B.C. the country was invaded by the Carthaginians, who planted the colony of New Carthage, now Cartagena, and claimed the whole county as far as the Ebro, but in the same century they were driven out by the Romans, who gradually conquered the whole country. The Roman conquest was completed in the reign of Augustus, by whom the peninsula was divided into the three provinces of Hispania Tarraconensis, Hispania Bætica, and Lusitania, the first embracing the greater part of modern Spain, the second corresponding to Andalusia and the south-western part of Estremadura, and the last corresponding to Portugal and the western part of Estremadura. In the fifth century A.D. the peninsula was invaded by a succession of German tribes. Vandals settled in the south (Vandalusia, now Andalusia), Suevi in Galicia, and Alans in Portugal. In the latter part of the same century the whole country was overrun by the Western Goths (Visigoths), who founded a kingdom which lasted till the beginning of the eighth century. A new race of invaders then appeared in the south. In 711 Arabs crossed over from Mauretania and in the course of two years conquered the whole peninsula to the mountains of Asturias. The Goths, however, remained unconquered in the mountains, and gradually reconquered one part of the country after another from the Arabs, whose dominion was in the end entirely overthrown. Several different kingdoms were formed as these conquests proceeded, but they were all ultimately, though not permanently, united into one. The first kingdom formed was that of the Asturias or Oviedo in the eighth century, which in 914 became the Kingdom of Leon. In 1033 Castile, previously a country dependent on the Kingdom of Navarre (founded in the ninth century), was erected into a kingdom, and with it Galicia, which had been conquered from the Arabs about 760, was finally united in 1191, and the Kingdom of Leon in 1230, before which date the frontiers of the Kingdom of Castile had been extended in wars against the Moors to the Sierra Morena. Portugal meanwhile had been partly conquered from the Moors by Leon and Castile before 1095, when it was placed under counts owing allegiance to Castile. In 1137 the count made himself independent, two years later was proclaimed king of Portugal, and in 1143 extended his kingdom to Algarve, which was finally wrested from the Moors in 1251. After the union with Leon

the wars of Castile against the Moors were continued till 1344, when the Moors were restricted to the Kingdom of Granada in the south-east of Andalusia. Two years after the foundation of the Kingdom of Castile that of Aragon was founded, and to it the county of Catalonia (which, along with part of Aragon, had belonged to the empire of Charles the Great) was annexed by marriage in 1137. In the next century Valencia and the Balearic Isles were conquered by Aragon from the Moors, and in 1305 Murcia, which had also been conquered from the Moors shortly before, was divided between Aragon and Castile. From this time, therefore, to the early part of the sixteenth century the Iberian Peninsula was divided between the Kingdoms of Portugal, Castile, Aragon, Navarre, and the Moorish kingdom of Granada. Between 1481 and 1491 the last-mentioned kingdom was overthrown by Isabella, queen of Castile, and her husband Ferdinand of Aragon; and, Navarre being conquered by Ferdinand in 1512, the whole of Spain fell in 1516 as a single kingdom to the grandson of the sovereigns just mentioned, namely, to Charles, afterwards Charles V. of Germany. In 1580, on the extinction of the royal house of Portugal, that kingdom also was annexed to Spain by Philip II., but that union terminated in 1640, when the Portuguese revolted and regained their independence under a new dynasty. See NETHERLANDS and ITALY.

THE CANARIES, though properly speaking an African group of islands, are regarded as an integral part of the Spanish monarchy. They lie off the north-west coast of Africa between lat. 27° 4′ and 29° 3′ N. They are evidently of volcanic origin, and are all rugged and mountainous. The highest peak is that of Teneriffe, 12,192 feet. The climate is remarkably healthy, and the parts capable of cultivation (about one-fifth of the whole area) extremely fertile, whence the islands were known to the ancients as the *Insulæ Fortunatæ*. The principal products are wine of excellent quality, fruits, raw silk, cochineal, and soda, the last obtained from barillo (*Mesembryanthemum crystallinum*), which is cultivated for the purpose. The group was first occupied by the Spaniards about 1330, but afterwards abandoned and re-occupied about the close of the fifteenth century. At that time the islands were inhabited by a tribe called the Guanches, of whose civilization a very interesting account is given by the Spaniards. They are described as an inoffensive race, living under an aristocratic constitution and remarkable above all things for the purity of their morals and the respect in which women were held by them. In a recent work by F. von Löher an attempt is made to prove from various indications that they were of Teutonic origin. The tribe has long been extinct, and Spaniards now make up almost the whole population. Area of the islands, 2808 square miles; pop. in 1877, 280,388.

ANDORRA.

Andorra is a small semi-independent state in the Pyrenees between Catalonia and the French department of Ariège. It is mainly a land of pastures and forests, the latter furnishing excellent building timber. Iron is also obtained in

several mines, and is manufactured to some extent into tools and implements; but this and every other branch of industry are carried on in the rudest and most primitive manner. The inhabitants speak a Catalan dialect, are all strict Roman Catholics, simple and austere in their manners, almost unacquainted with disease, and nearly equally so with crime. The state is governed by a council of twenty-four members elected by the parishes for four years; but the command of the militia and the administration of criminal justice are intrusted to two officers called *viguiers* (*vicarii*), one appointed by France and one by the Bishop of Urgel, to each of which superiors the republic pays a small annual tribute. This little state is said to owe its independence to Charles the Great, and was long under the joint superiority of the Bishop of Urgel, and the masters of the county of Foix, the rights of the latter of whom passed with the county to France. Area, 914 square miles; pop. about 18,000.

PORTUGAL.

Portugal is a kingdom in the south-west of Europe, forming the west part of the Iberian Peninsula. Its greatest length from north to south is 345 miles; greatest breadth, 140 miles.

POLITICAL DIVISIONS.—Portugal is divided into seven provinces, of which the names, area, and population, according to the census of January 1, 1878, are exhibited in the following table:—

Provinces.	Area in sq. miles.	Population, 1878.
Minho, ...	2807	1,015,394
Tras-os-Montes, ...	4251	410,461
Beira, ...	9244	1,390,747
Estremadura, ...	6872	951,545
Alemtejo, ...	9416	374,503
Algarve, ...	1872	205,901
Total continent, ...	34,462	4,348,551
Azores, ...	996	264,352
Madeira and Porto Santo, ...	315	132,221
	35,773	4,745,124

PHYSICAL FEATURES.—Portugal is not separated from Spain, except on a small part of its frontier, by natural boundaries. The coast is occasionally bold, and rises to a great height, particularly at Cabo da Roca, where it presents a range of giddy cliffs; but for the far greater part is low and marshy, and not infrequently lined by sands and reefs, which make the navigation dangerous. The interior is generally mountainous, a number of ranges stretching across the country, either in west, south-west, or south-south-west directions, forming a succession of independent river basins, while their ramifications, penetrating in all directions, form the watersheds of numerous subsidiary streams, and inclose many wild and beautiful valleys. The loftiest range of all is the Serra d'Es-

trella, which may be considered as a continuation of the central chain which stretches across Spain between Old and New Castile, and between Leon and Estremadura. Near the town of Guarda it forms a fork, one limb of which proceeds north, and another south-east, while the main chain attains its culminating point of 7524 feet about 5 miles west of the town of Covilha, and is there continued in a south-south-west direction to its termination in the lofty cliffs of Cabo da Roca. The rugged nature of the surface makes the plains both few in number and of limited extent, but many valleys equally remarkable for beauty and fertility occur. The chief plains are those of Almeida and the Terra de Braganza, the former in the province of Beira-Alta, and the latter in that of Tras-os-Montes; the chief valleys, those of Chaves, Villarica, and Besteiros. No rivers of importance take their rise in Portugal, and yet few countries in proportion to their extent are better supplied with large and navigable streams, all the large rivers that enter the country from Spain being navigable from the Portuguese frontier. Of these the Guadiana is the only large river which deviates from the general westerly direction, and flows mainly south. Numerous small lakes are scattered over the surface and embosomed in the mountains.

GEOLOGY AND MINERALS.—The nucleus of the mountains is usually granite, overlaid in the north by micaceous schist and other metamorphic rocks. In the south, particularly in the Serra Monchique, primitive limestone is very abundant. More recent limestones and schistous sandstones occupy large tracts in different parts of the country. Volcanic formations are very apparent in the Serra de Caldeirao, forming an eastern continuation of that of Monchique. The mineralogical treasures seem more remarkable for their variety than for their value. They include iron pyrites, manganese, copper, lead, fine marble, coal, cobalt, bismuth, antimony, gold, slate, saltpetre, lithographic stones, millstones, and porcelain earth, but the first five are all that are of any importance. Garnets, jacinths, amethysts, and other precious stones are found in various places. Salt of the finest quality is obtained from the sea by evaporation, and largely exported especially from Setubal. The salt imported into Britain comes chiefly from Portugal.

CLIMATE.—The climate is greatly modified by the proximity of the sea and the height of the mountains, the former tempering the excessive heat of summer by refreshing breezes, and the latter making the winter more rigorous than usual in countries under the same latitude. In general, however, winter is both short and mild, and in some places never completely interrupts the course of vegetation. In consequence of this many parts of Portugal enjoy the benefit of a double spring. Early in February vegetation is in full vigour; the plants shoot forth rapidly, attain maturity, and either wither away, or, if of economical value, are gathered and harvested. There is generally continued drought from July far into September; but at last the sky, which had previously been serene, becomes overcast, and copious showers descend. The second spring now begins, and the fields again become covered with flowers and verdure. Winter begins at the end of November, and is a season of heavy rains, accompanied not infrequently by violent hurricanes, and thunder-storms are not uncommon.

VEGETATION, AGRICULTURE, &c.—There are few countries with a more varied flora than Portugal. The number of species has been estimated to exceed 4000, and of these more than 3000 are phanerogamous. Many of the mountains are clothed with fine forests, chiefly of hardwood, among which the oak, both the ordinary species or *Quercus robur*, and the cork-tree or *Quercus suber*, are conspicuous. In the central provinces at a moderate elevation magnificent chestnuts are very prevalent. In the south, in the province of Algarve, the dwarf-palm, the carob-tree, the date, and the American aloe are characteristic products. Fruits of excellent quality are common in every quarter, though it is only in the warmer and better-sheltered districts that the orange, lemon, and olive are cultivated with success on an extensive scale. The mulberry is admir-

General view of Lisbon from near Almada.

ably adapted to the climate, and by means of it a good deal of excellent silk is obtained; and a large extent of country is devoted to vine culture, caused partly by the demand for Portuguese wines (port) in Britain. The principal wine-growing region is the basin of the Douro. Agriculture in the restricted sense of the term is in general in a very backward condition. As regards soil and products the country may be divided into four districts, a north-western extending as far south as the Mondego, a north-eastern embracing the province of Tras-os-Montes and eastern Beira, a central extending from the Mondego to south of the Tagus, and a southern region comprehending the remainder of the country. The first of these districts has the most fertile valleys, and is the most thickly populated part of the country. Small proprietors predominate, and the cultivation is generally on a small scale. The principal corn crop is maize. The north-eastern district is the most elevated part of Portugal, and produces maize and wheat only in the valley bottoms. The prevailing crop is rye. Here also small properties and cultivation on a small scale are the rule. The central district is of medium fertility. Wheat and maize are grown in about equal

quantity, and rice is also grown to a very considerable extent. The properties are mostly large or at least of moderate extent. The southern region is the least fertile and most thinly populated of all. It is in this region that the forests of oak and cork abound, and large numbers of swine are fattened on the acorns which they produce. The principal cereal is wheat. The land is mostly divided into large properties. Potatoes thrive peculiarly well throughout Portugal, and tomatos are also an object of cultivation. Among domestic animals the first place is due to the mule, of which very superior breeds have long been possessed, and are carefully preserved. Sheep, goats, and hogs are very numerous, but little attention is paid to their improvement. Horned cattle are few except in the north-west, where stall-feeding has been introduced, and large numbers of cattle are now reared for export.

MANUFACTURES, &c.—Manufactures are still of very limited amount, although they have been increasing of late years; but almost every family is so far manufacturing, that it supplies itself more or less with many of the articles of primary necessity. Among the articles made to some extent for sale may be mentioned armour at Lisbon, woollen cloth and other woollen stuffs at Porto Alegre, Covilhao, Tundao; porcelain at Vista Alegre; delft and ordinary earthenware at Lisbon, Oporto, Coimbra, Beja, Estremoz, &c.; prints and lace at Lisbon and Oporto; cotton-twist at Thomar; silks at Braganza, Chacim, Oporto, &c.; copper and tin ware at Lisbon and other places; corks, ribbons, embroidery, hats, confectionery, fine soap, jewelry and cut gems, glass, paper, wicker-work, and tobacco. Ship-building also is well understood, and a large number of vessels are constructed at Lisbon, Figueira, Oporto, and Villa do Conde.

FISHERIES.—On the coasts of Algarve, especially on the parts contiguous to Andalusia, enormous quantities of sardines and tunnies are captured, and the fisheries of Beira are also very considerable. In the latter district oysters are beginning to form an article of export even for the French market. In spite of this, however, the fisheries of Portugal are no longer so actively pursued as they once were, and the greater part of the fish consumed in the country is imported.

COMMERCE AND COMMUNICATIONS.—The foreign trade of Portugal is smaller even than that of Norway. The country with which it is mainly carried on is the United Kingdom, and those next in importance in this respect are Brazil, France, and Spain. The principal exports are wine, fruits, and animals and animal food, the United Kingdom receiving from Portugal on an average one-fifth of the quantity and one-sixth of the value of her whole import of wine. The principal imports are metals, manufactured articles, and cereals. The chief ports are Lisbon, Setubal, Faro, Figueira, Aveiro, and Vianna. The total length of railways in the kingdom is equal to about 1 mile for every 48 square miles of surface. The number of private letters annually carried by the post-office is equal to rather more than three per head of the population, and the number of telegrams is equal to about one for every six persons. Nearly half of the latter are international. There is a telegraphic cable to Brazil by way of Madeira and the Cape Verde Islands.

MONEY, WEIGHTS, AND MEASURES.—Accounts are kept in reis and milreis or 1000 reis. The value of the rea is so minute that the milreis is worth only about 4*s.* 4½*d.* The French metric system of weights and measures was introduced into Portugal between 1860 and 1863; but some of the old measures are still in use. The chief of these are the Portuguese *libra* = 1·012 lb. avoirdupois; the *almude* of Lisbon = 3·7, of Oporto = 5·6 imperial gallons; the *alquiere* = 36 of an imperial bushel; the *moio* = 2·78 quarters.

RELIGION AND EDUCATION.—The established religion is the Roman Catholic. The Roman Catholic Church in Portugal is governed by a patriarch at Lisbon, two archbishops at Braga and Evora, and fourteen bishops. Conventual establishments were suppressed by decree of 28th May, 1834. Their

The River Douro at Oporto.

revenues were applied to the redemption of the national debt. Their books were collected, and form a library of 30,000 volumes at Lisbon. Though all other religions besides the Roman Catholic are tolerated, the number of dissidents from the established religion is very small. There are only about 500 Protestants, and these are mostly foreigners. Education is under a distinct ministry, and free from the supervision of the church. It is compulsory by law; but the law is not enforced, and according to the most recent information only about one in twenty of the population, or less than one-third of the children of school age, are actually in attendance at school. The only university in the kingdom is that of Coimbra, founded at Lisbon in 1290, and transferred to Coimbra in 1308.

PEOPLE, &c.—The population of Portugal is in the main of the same origin as that of Spain, but the Portuguese in general is said to be less distinguished by gravity and solemnity of demeanour than the Spaniard, and the Portuguese peasant bears the character of possessing an inexhaustible fund of gaiety and good humour. The average density of the population is about 120 to the square mile. In the province of Minho it is 362 to the square mile, and in that part

of the country the population is generally in easier circumstances than in any other part, and is also better clothed and better lodged than in the contiguous provinces of Spain. In Alemtejo the density of the population is only about 40 to the square mile. The Portuguese language, originally only a dialect of Spanish, differs from the latter tongue more in its pronunciation than in its elements and structure.

GOVERNMENT AND DEFENCE, &c.—The Carta Constitutional of King Pedro IV., granted 29th April, 1826, and amended 5th July, 1852, is the fundamental law of the kingdom. The crown is hereditary both in the male and female line, but with preference of the male. The constitution recognizes four powers in the state—the legislative, executive, judicial, and moderating. The last, which is equivalent to prerogative, is vested in the sovereign. There are two chambers, the Camara dos Pares and the Camara dos Deputados. The two are called the Cortes Geraes. The peers are nominated by the sovereign, who also nominates the president and vice-president of the chamber. The peerage is hereditary in the direct line, but no peer can take his seat in the cortes unless he possesses an income of £500, and has taken an academical degree. An income of £22 clear qualifies an elector to vote for a member of the chamber of deputies. A deputy must have £89 per annum. A new parliament is convened without interval on the dissolution of the old. The revenue of Portugal has been constantly deficient for more than thirty years, and more than two-fifths of it is required to meet the debt charges. The army is raised partly by conscription partly by voluntary enlistment.

COLONIES AND DEPENDENCIES.—The colonial possessions of Portugal were, like those of Spain, at one time much more extensive than they are now. The chief loss was occasioned by the secession of Brazil in 1822. At present the Portuguese colonial possessions consist of—in Asia—Goa, Salsette, Bardez, Daman, and Diu, all in Hindustan, Macao, and other possessions in the Indian Archipelago, having together an area estimated at 6944 square miles, and a population estimated at 772,000: in Africa—Cape Verde, St. Thomas, and Prince's Islands, Senegambia, Guinea, Angola, Benguela, Sofala, and Mozambique, with an aggregate area of 697,180 square miles, and an estimated population of 2,500,000. The total area of the Portuguese dominions therefore amounts to 704,124 square miles, the population to 3,272,000.

CHIEF TOWNS.—The only towns of consequence in Portugal are Lisbon, the capital, and Oporto, each of which has a population exceeding 100,000. Lisbon (Portuguese, *Lisboa*), beautifully situated at the mouth of the Tagus, is a very ancient town, probably of Phœnician origin. It was anciently called Olisipo, and afterwards as a Roman municipium Felicitas Julia. It was taken by the Moors in 716, remained in their possession till 1147, and was made the residence of the kings of Portugal only in 1383. The district in which it lies is subject to earthquakes, and on the first of November, 1755, the city itself was in great part destroyed by one of the most disastrous earthquakes on record, an earthquake in which upwards of 30,000 people are said to have perished. The population, including the suburbs of Olivaes and Belem, is about 265,000. Oporto or Porto

(108,000) has a situation near the mouth of the Douro not unlike that of Lisbon on the Tagus. It occupies two granite hills about 300 feet high, and is connected with its suburb of Villanova de Gaya on the opposite bank of the river by an elegant wire suspension bridge about 750 feet in length. In the interior there are numerous fountains, charming promenades, and various points commanding fine views of the town, the river, and the country round. It is the seat of various industries, the second port in the kingdom (Lisbon being the first), and above all the great place of export for the wines of the Douro, the trade in which is to a large extent in the hands of British merchants. Oporto is the ancient Portus Calensis, and has given its name to the whole kingdom.

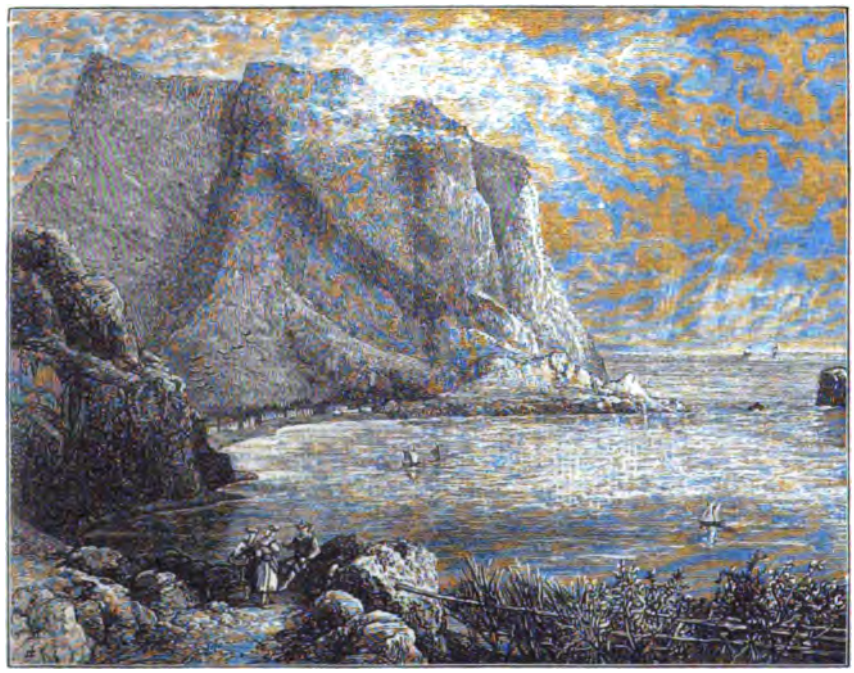
HISTORICAL SKETCH.—See SPAIN.

THE AZORES (Portuguese, *Açores*) are a group of small rocky islands in the North Atlantic Ocean, between lat. 36° 59′ and 39° 44′ N., and lon. 25° 10′ and 31° 7′ W. They are conical in shape, lofty and precipitous, and of a very rugged but picturesque appearance. The peak of Pico rises to the height of upwards of 7000 feet. The islands are of volcanic origin, and are still subject to volcanic outbursts and earthquakes. Viewed at a distance they seem blasted and barren, but on a close inspection are seen to be covered with luxuriant vegetation. The climate is benign, though somewhat humid, the soil fertile. The principal exports are wine and fruits. The islands were colonized by the Portuguese in the first half of the fifteenth century, and before that time had no human inhabitants, and scarcely any other animals except birds, particularly hawks, whence the name, signifying Hawk Islands. Area, 996 square miles; pop. 264,000.

Caldeira of Flores, Azores.

MADEIRA is an island lying off the north-west coast of Africa, in about lat. 32° 30′ N., and lon. 17° 25′ W. It consists of a collection of mountains of volcanic origin, the most elevated of which is upwards of 6000 feet high; and the mountains sink in most parts almost precipitously down to the water's edge, leaving only here and there room for small fertile bays, in which the villages of the island are situated. The principal production of the island is wine, but since the appearance of the vine disease in 1852, other objects of cultivation, especially cereals, the sugar-cane, and the cochineal-fig (*Opuntia cochinillifera*) for the rearing of the cochineal insect, have received a larger share of attention. The sugar-cane

and the cochineal plant were, indeed, first introduced after the date mentioned. The mean annual temperature of Madeira is 65° Fahr.; and the climate, from its constant and temperate warmth, has a remarkably favourable effect on those suffering from pulmonary complaints, which renders the island a favourite resort of invalids from Britain and elsewhere. The capital is Funchal (21,000). The group of the Madeiras includes also the smaller adjacent islets of Porto Santo and the Desertas. The group was colonized by the Portuguese about the same



Penha d'Aguia and Porto da Cruz, Madeira.

time as the Azores, and the name of Madeira was given to the principal island because of the magnificent forests of building timber (in Portuguese *madeira*) which then covered it. Area of the group, 315 square miles; pop. 206,000.

RUSSIA.

The Russian Empire is the most extensive, but not the most populous, dominion in the world, embracing a continuous stretch of territory in Europe and Asia between about lat. 38° and 78° 20′ N. and lon. 18° E. and 170° W., besides several large islands in the north and east. The whole area of this territory, exclusive of the Caspian Sea, is about 8,380,000 square miles, or about

one-twentieth more than the area of the British Empire, the total population about 88,000,000, or somewhat more than a third of that of the British Empire, and perhaps only a fifth of that of the Chinese Empire. The European portion of the empire, including Russia Proper, the grand principality of Finland, and the European part of the Caucasian governments, makes up considerably more than a half of the whole area of Europe, but its population is little more than a fourth of that of the whole continent. The present section will embrace only this portion of the empire together with the Asiatic governments of the Caucasus. The length of this portion of the empire on the meridian of 45° E. is rather more than 2000 miles, the breadth on the parallel of 52° N. upwards of 1700 miles.

POLITICAL DIVISIONS.—The following table shows the area and population of the political divisions of European Russia and the governments of the Caucasus:—

Fifty Russian Governments.	Area in English sq. miles.	Pop. 1870.
1. Archangel,	331,505*	281,112
2. Astrakhan,	86,672	601,514
3. Bessarabia,	17,321	1,200,000
4. Chernigof,	20,233	1,659,600
5. Don Cossacks,	61,915	1,086,264
6. Ekaterinoslaf,	26,148	1,852,300
7. Esthonia,	7,818	323,961
8. Grodno,	14,965	1,008,521
9. Kaluga,	11,940	996,252
10. Kazan,	24,601	1,704,624
11. Kharkof,	21,041	1,698,015
12. Kherson,	27,523	1,596,809
13. Kief,	19,688	2,175,132
14. Kostroma,	32,702	1,176,097
15. Kovno,	15,692	1,156,041
16. Kurland (Courland),	10,536	619,154
17. Kursk,	17,937	1,954,807
18. Livonia,	18,159	1,000,876
19. Minsk,	35,274	1,182,230
20. Mohilef,	18,551	947,625
21. Moscow,	12,858	1,913,699
22. Nishni-Novgorod,	19,797	1,271,564
23. Novgorod,	47,236	1,011,445
24. Olonetz,	57,439	296,392
25. Orel,	18,042	1,596,881
26. Orenburg,	73,889	900,547
27. Penza,	14,996	1,173,186
28. Perm,	128,251	2,198,666
29. Podolsk,	16,224	1,933,188
30. Poltava,	19,265	2,102,614
31. Pskof,	17,069	775,701
32. Riazan,	16,255	1,477,433
33. St. Petersburg,	20,760	1,326,875
34. Samara,	60,200	1,837,081
35. Saratof,	32,624	1,751,268
36. Simbirsk,	19,110	1,205,881
37. Smolensk,	21,638	1,400,015
38. Tambof,	25,684	2,150,971
39. Taurida,	24,539	704,997
40. Tula,	11,956	1,167,878
41. Tver,	25,225	1,528,881
42. Ufa,	47,033	1,364,925
43. Viatka,	59,116	2,406,024
44. Vilna,	16,413	1,001,909
45. Vitebsk,	17,439	888,727
46. Vladimir,	18,864	1,259,923
47. Volhynia,	27,738	1,719,890
48. Vologda,	155,498	1,003,039
49. Voronej,	25,439	2,153,696
50. Yaroslaf,	13,751	1,001,748
Ten Polish Governments.		
1. Kalish,	4,391	669,261
2. Kjeletz,	3,897	518,730
3. Lomsha,	4,666	489,699
4. Lublin,	6,501	707,098
5. Piotrokof,	4,729	682,495
6. Plock,	4,200	471,938
7. Radom,	4,769	532,466
8. Siedletz,	5,534	504,606
9. Suvalki,	4,846	524,489
10. Warsaw,	5,623	925,639
	1,933,685	72,018,399
Finland (1877),	134,829	1,968,626
Caucasian Provinces,	179,527	5,500,000
	2,248,041	79,487,025

* Including Nova Zembla.

PHYSICAL FEATURES.—The surface of European Russia, including Finland, consists, in the most general view that can be taken of it, of two immense plains,

the boundary between which is marked, though not very definitely, by a broad central ridge which stretches across it in an irregular waving line, mainly in a north-east direction, commencing on the frontiers of Poland, and terminating on the west side of the Ural Mountains, near lat. 62° N. This ridge forms the eastern continuation of the great water-shed which divides the whole continent of Europe into a north and a south basin; but, unlike the west part, which is composed of lofty mountain chains or elevated plateaux, is only of very moderate

Novo Cherkask, on the Don, chief town of the Don Cossacks.

height, never exceeding 1000 feet above sea-level. Even this height is attained only in the Valdai Mountains, which have very little title to the name. The far greater part of them, and of the remainder of the ridge, has an average height of not more than 500 feet. The only regions where the surface assumes a decidedly mountainous appearance are in the east, where the Ural chain, though nowhere exceeding 6000 feet, looks much more elevated, at least in its upper part, from its high latitude and consequent covering of perpetual snow; and in the south, where the mountains of Taurida, lining the southern shores of the Crimea, have a height of about 4000 feet. With these exceptions the only other parts of European Russia which, according to the limits above assigned to it, do not

belong to its two immense plains, are those districts of Perm and Orenburg which are situated on the east side of the Urals, and slope towards the almost boundless steppes of Asia. North of the Caspian a tract extending to about 49° N. lies below sea-level, and the surface of that sea itself is 84 feet below the level of the Black Sea.

RIVERS AND LAKES.—The broad central ridge above referred to, forming the great water-shed of the country, sends the waters on the north side of it either to the Arctic Ocean or to the Baltic, and those on the south side of it to the Black Sea or to the Caspian. These, therefore, form the four great basins to which all the rivers of European Russia belong. These rivers are remarkable both for their number and their magnitude, the Volga, belonging to the Caspian basin, being the longest river in Europe. Its total length including windings is about 2400 miles. The rivers of the Caspian, particularly the Ural and Volga, and those of the Sea of Azof are celebrated for their sturgeon. In the same quarters there are also important salmon-fisheries. The lakes of Russia are on a scale of magnificence fully commensurate with that of the rivers. With the exception of the Caspian, which has an area of about 169,700 square miles, but does not belong wholly to Russia, all the larger lakes belong to the northern basins, and with scarcely a single exception to the basin of the Baltic. To it at least belong Ladoga (6804 square miles), the largest lake in Europe, nearly three and a half times larger than Lake Wener in Sweden; Onega (4855 square miles), Peipus (1408 square miles), and Ilmen (340 square miles). Finland, too, which toward its south extremity is a mere net-work of lakes, sends all its waters to the Baltic. Almost all the other lakes of any consequence belong to the basin of the Volga. Their dimensions are much inferior to those already mentioned, but in any other country less amply provided such lakes as the Bielo-Ozero, in the government of Novgorod, and the Koubinsköe, in the government of Vologda, would not pass unnoticed. In the south are several large salt-lakes, among which may be mentioned Lakes Elton and Baskunchatski, in the government of Astrakhan.

GEOLOGY.—The most striking feature in the geology of Russia is the vast area over which its principal formations are developed. Of these we have already had occasion to give a rough account in the section on Europe, and to that section the reader is now referred. To the information there given it need only be added here that the whole of the north-west of Russia Proper, including the greater part of Finland, appears to have belonged to the immense sea which during the second ice age covered a large part of Northern Europe. The line that marks the limit of the boulders deposited by this sea is on the south a very irregular one, the extreme points of which are near Lutzk in the government of Volhynia, a little to the south-east of Mozir in Minsk, near Pulievil in Kursk, and near Voronej in the government of the same name. From this last point the boulder limit strikes first north by east to Nikolsk in Vologda, thence east by north to the north of the government of Perm, and thence north-west to the Gulf of Cheskaya. In the south-east also there was during the same period a submerged area including the whole of the present depressed tract north of the

Caspian and a strip bringing the Caspian into communication with the Black Sea through the Sea of Azof.

CLIMATE.—A country extending over at least 35 degrees of latitude, from the warmer regions of the temperate far into the regions of the frozen zone, must exhibit several very marked diversities of climate. It is usual accordingly to consider it in four distinct divisions—a polar region in the north, a cold region the extreme north limit of which is about lat. 67° N., a temperate region the extreme north limit of which is 57° N., and a warm region with lat. 50° N. for its extreme north limit. In regard to the climate in general it may be observed that its characteristic features are a greater coldness and variableness than is common under the same latitudes in the more westerly parts of Europe. The mean annual temperature of the upper part of the Norwegian coast to its extremity at the North Cape is above the freezing-point, whereas a considerable portion of Russia within the same, and even in a lower latitude, is below it. This is true of the whole of Russian Lapland as far south as 66°; and to the east of the White Sea the thermal line, indicating a mean annual temperature of freezing, descends so rapidly that on reaching the Ural Mountains it is found to be as low as 60°. The other climatic divisions agree with this one in having their northern limit furthest north in the west. The region to which the name of cold has been given has a mean annual temperature between 32° and 40°, but very unequally divided throughout the year, the cold in winter often sinking the thermometer to 30° below zero, or 62° below freezing, while the summer heat often raises it above 80°. The temperate region has a mean annual temperature varying from 40° to 50°, and includes within it by far the finest part of the Russian territory, though even there the thermometer has a very wide range, the summer heat which suffices to grow melons and similar fruits in the open field being often succeeded by very rigorous winters. The warm region well merits the name from its extreme summer heats, the thermometer in June and July standing commonly about 100°, and often considerably higher. It is not, however, free from the remarkable contrasts which a Russian summer and a Russian winter exhibit; for the Sea of Azof, situated almost in the heart of this region, usually freezes about the beginning of November, and is seldom open again before the beginning of April.

In all the countries bordering on the shores of the Baltic Sea and the Arctic Ocean, and bounded on the west and north by the basin of the Volga, the air is charged with a superabundance of moisture, which descends in mists and frequent falls of rain or snow. Towards the centre, and still farther east, the superabundance of moisture disappears, though enough still remains to keep vegetation in full vigour even at the hottest season. Still farther south the want of rain is often felt, and long-continued droughts do frequent mischief. In general, however, the climates of all the regions are not unfavourable to health, and except in particular districts, where the insalubrity can easily be traced to local causes, disease is by no means prevalent, and human life often attains its longest term.

VEGETATION, AGRICULTURE, &c.—In respect of its productions Russia

(including Finland) may be divided into four districts, the region of the *toundras* in the extreme north, the forest region to the south of that, the industrial region still further south, and the agricultural region in the south and west. Of the toundras only those parts are habitable which are covered with the lichen *Cladonia rangiferina*, for only those afford nourishment to the reindeer. The only inhabitants of these regions are a few thousand Samoyedes east of the White Sea, and a few families of Loparian Finns in the peninsula of Kola. The forest region extends southwards to about lat. 60°, and consists in a large measure of an almost unbroken expanse of woodland. In the most thickly wooded government, that of Vologda, the forests cover nearly 93 per cent of the entire surface. In Finland the proportion is 52 per cent. The prevailing trees of the northern forests are fir, larch, alder, and birch. The products of this region are timber, tar, and potashes, besides furs from the numerous fur-bearing animals that are found there. In the industrial zone, which includes the sixteen governments of St. Petersburg, Pskof, Vitebsk, Minsk, Mohilef, Smolensk, Kaluga, Moscow, Tver, Yaroslaf, Vladimir, Nishni-Novgorod, Kostroma, Kazan, Simbirsk, and Ufa, it has been calculated that the grain raised would suffice for only 270 days' consumption. In the agricultural region, on the other hand, all the cereals are produced in such abundance as not only to meet the home consumption but leave a large surplus for export. This region may be divided into two sections, one of which owes its productiveness to the natural fertility of the soil and favourable character of the climate, while in the other it is due more to the skill and industry of the cultivators. The former comprises the governments of Volhynia, Podolia, Bessarabia, Kief, Chernigof, Poltava, Kharkof, Kursk, Tula, Orel, Voronej, Riazan, Tambof, and Penza, and is the region of what is known as *chernozem* or *chernozyom*, a rich black soil which covers the surface to the depth of three or four feet on an average, but in some places to a depth of upwards of twenty feet. In no country in Europe is so much corn obtained at so small an expense of skill and labour as in these parts of Russia. The latter district comprises the Polish governments, and those of Grodno, Vilna, Kovno, Kurland, Livonia, Esthonia. The most

Post-house on the route from Kostroma to Yaroslaf.

important crops raised for food are rye, wheat, barley, oats, buckwheat, maize, and potatoes; and for other purposes, hemp, flax, hops, tobacco, and beet-root for sugar. The principal wheat districts are parts of Poland, particularly the governments of Warsaw, Radom, and Lublin; the fertile, alluvial tracts along the banks of northern rivers; and the governments of Volhynia, Podolsk, Kief, and Poltava. The vine and mulberry also are extensively cultivated, and considerable quantities both of wine and silk are obtained. In the Crimea extensive vineyards have been formed with plants selected with the utmost care, and several of the wines have already acquired a high name. Other governments have imitated the example, and the export of wine promises to become an object of great national importance. Among the principal districts in which the culture of the vine is regarded as an object of primary importance may be mentioned Bessarabia, Kherson, Kief, Astrakhan, and the Don Cossacks. The last makes large quantities of a wine resembling champagne, which finds a ready sale in St. Petersburg, Moscow, and many of the larger towns.

Among the domestic animals of Russia there are horses of various breeds, of which those in the north are generally small but hardy; those of the central and south provinces large and well adapted for draught; and those of the Cossacks remarkable for their spirit and endurance of fatigue, and their admirable adaptation for light cavalry. In several of the steppes horses still run wild. Cattle are much used, particularly in the south, for agricultural operations, and exist in such numbers that tallow and hides form very important articles of export. The best breeds are those of the Ukraine, Archangel, Bessarabia, and Grodno. The sheep are chiefly of three breeds—the original Russian, which is found in vast numbers in every part of the country, and though generally inferior, and producing a very indifferent wool, has been of late greatly improved by crossing with the merino and Saxon; the Kirghiz breed, remarkable for large size, a darkish-red colour, long but coarse wool, and more especially for their ponderous tails, from which from 30 lbs. to 40 lbs. of tallow are obtained, and existing in vast numbers on the steppes of the Volga; and the Circassian breed, not confined to the Caucasian provinces, but widely diffused in the Crimea, and among the Cossacks of the Black Sea and of the Don. The improved breeds of sheep are found especially in the Baltic governments of Livonia, Esthonia, and Kurland, but are rapidly spreading into other quarters. Goats are numerous in the south, where they are valued chiefly for their skins, which are used in making morocco leather. In Podolsk and Ekaterinoslaf some Angora goats are kept for their fleeces, which are remarkably fine, and manufactured into shawls. Among wild animals may be mentioned the bear, the wolf, wild hog, and various animals which are hunted for their furs. Wild fowl abound, particularly near the mouths of rivers. Large numbers of pelicans are found on the shores of the Black Sea.

MINERALS.—These are both numerous and very valuable. Gold is obtained in large quantities, both by mining and washing, on the slopes of the Ural Mountains, and the streams which descend from them. All of these, however, with a very few exceptions, are found on the east side of the chain, and therefore belong more properly to Asiatic than to European Russia. Copper is found

both in the Valdai and the Ural Mountains. To the west of the latter, in all the low country of Perm, are vast cupriferous deposits, from which large quantities of metal are annually obtained under the most favourable circumstances, the workings themselves being not only comparatively easy, but all the materials necessary for smelting, and more especially unlimited supplies of fuel, existing in their immediate vicinity. The governments of Olonetz, Viatka, Kazan, Vologda, and Orenburg have also their copper-mines. Iron, the most widely diffused of all the Russian metals, and the most extensively and profitably worked, is found not only among the mountains but in the lowest marshy grounds, where extensive beds of bog iron ore have been formed. The principal seat of the iron manufacture is in the government of Perm, where remarkably large quantities of iron are found, especially in the old eruptive rocks that protrude here and there along the eastern slopes of the Ural, and which also contain a great wealth of copper. In this quarter there are four large mountains consisting almost entirely of magnetic ironstone. But numbers of blast-furnaces have been erected also in other parts of the country. Lead is more sparingly diffused, and is worked chiefly in the Ural chain and some parts of Poland, particularly the vicinity of Cracow and Sandomir. It sometimes contains such a percentage of silver as to make it worth extracting. Platina has long been worked in the Ural chain, in the most productive mines of that metal which are known to exist in the world. Salt is found in such abundance, both in brine-pits and mines, that it may be considered altogether inexhaustible. In almost every part of a vast region in the north-east it may easily be found, and in numerous localities is extensively and profitably worked. Saltpetre is found chiefly in the government of Astrakhan. The chief coal-fields yet ascertained to exist are among the Valdai Hills, where the coal is generally so thin and poor as hardly to merit the name; in the government of Moscow, where seams from 3 feet to 6 feet thick are seen cropping out in many ravines, and might, it is supposed, be profitably extracted, though the quality of the coal is acknowledged to be very inferior; and in an extensive tract between the Dnieper and the Don, and chiefly in that part of it watered by the Donetz. This last coal-district extends over an area of not less than 11,000 square miles, and is by far the richest in the Russian Empire. It is worked in several localities, and produces nearly a half of the whole production of Russian coal. A large proportion of the product is anthracite. For the smelting of metals the boundless forests furnish a more valuable material; and ages must elapse before these can be so much thinned as to make either the search for coal or the working of it objects of much importance. The only other mineral products deserving of notice are quarries of granite and marble, both of which, of excellent quality, are found near the shores and to the north-east of Lake Ladoga.

MANUFACTURES.—In a country where so much land remains to be taken into cultivation, and population is very much scattered, manufactures cannot be expected to be carried on upon an extensive scale, except in a few leading towns. Considering the unfavourable circumstances the progress of Russia in manufactures is much greater than could have been anticipated, and certainly much

greater than it could have been had not a succession of monarchs, commencing with Peter the Great, done the utmost to promote it, both by the establishment of large model manufactories and various other modes of encouragement. The branches in which most progress has been made are leather, both ordinary and morocco, the latter particularly at Astrakhan, Torjok in the government of Tver, Kazan, and Taurida, in all of which the article produced is unsurpassed in any other country in Europe; cotton twist and cotton goods at St. Petersburg, Moscow, and in the governments of Vladimir, Kostroma, and Astrakhan; woollen and linen goods in many parts of Poland, the governments of Kief, Ekaterinoslaf, Moscow, Kaluga, and most of the provincial towns; silks, particu-

General view of the Kreml, Moscow.

larly at St. Petersburg and Moscow; sail-cloth, at these two capitals, and also in the governments of Archangel, Riazan, and Novgorod; fine Cashmere shawls, in the governments of Penza and Ekaterinoslaf; fine carpets, at Kamenskoi, Smolensk, and Kursk; cordage, at Archangel and in the government of Orel; metals, more especially iron and copper, in the government of Perm, and many other localities; firearms and sword and other cutlery, in the government of Tula; plate-glass and crystal, at St. Petersburg, Tula, and Tver; tapestry, at Issa and St. Petersburg; paper, at Moscow, St. Petersburg, Yaroslaf, Kaluga, and in Livonia; carriages, jewelry, and porcelain, also at St. Petersburg and Moscow; hosiery, at Sarepta and various other places; and oil, wax, candles, soap, glue, tobacco, window-glass, glass bottles, &c., in almost every important town. The rapid increase of the cotton manufactures is shown by the quantity of raw cotton consumed, which in 1831 amounted to 9,000,000 lbs.; in 1860, to 94,000,000 lbs.; and in 1875, which is thus far the year of the largest import, 179,000,000 lbs. In general it may be remarked that a strictly industrial population is to be found only in a few of the largest towns. Elsewhere manufac-

tures are carried on by the peasants, who devote to spinning and weaving and the preparation of flax and hemp all the time that they can spare from husbandry.

MEANS OF COMMUNICATION.—The great distances by which the seas that wash the Russian coasts are separated from each other, and from the interior of the country, must have confined the foreign trade within very narrow limits had not a remarkable number of internal feeders been provided, partly by nature, and partly by art; by nature, in the magnificent streams which wind across the country in all directions, and owing to the general flatness of the surface are eminently adapted for navigation, and by art, first in the great systems of canals by which the different basins to which these rivers belong have been made to communicate with each other, so as to give a continuous navigation from the Arctic Ocean to the Black Sea, and from the Baltic to the Caspian; together with a net-work of branch canals, by which all the great towns of the interior have ready access to their outports and to each other; and secondly, in the system of railways, by which internal commerce will eventually be still more thoroughly opened up. The total length of the inland navigation of Russia amounts to nearly 26,600 miles, or about 1 mile of navigation for every 77 square miles of surface. Six-sevenths of this total consists of entirely natural waterways, the remainder of canalized rivers and canals, the latter constituting only about one-fiftieth part of the whole. The value of these means of internal communication is, however, considerably reduced by the fact that they are covered with ice for a longer or shorter period in winter, in the north from seven to eight months, in Middle Russia from five to six months, and in the south for three months. The railway system was begun by the Emperor Nicholas, and has now attained in Russia Proper, Russian Poland, the governments of the Caucasus, and Finland, a total length equal to about 1 mile for every 160 square miles of surface. The country is very insufficiently supplied with well-paved highroads, their total length being only from 5000 to 6000 miles. Some governments are entirely destitute of regular roads, and in wet weather the roads in the black soil region in the south get into such a condition that it requires five or six horses to draw a coach or cart. The number of private letters carried by the Russian post-office is equal to about five for every four persons, and the number of telegrams to about one for every fifteen persons.

COMMERCE AND SHIPPING.—The foreign trade of Russia is divided into the trade with Europe, the trade with Finland, and the trade with Asia. By far the most important of these is the first, which usually makes up at least fifteen-sixteenths of the whole. Of the European commerce about two-fifths is carried on over the land frontier, the remainder chiefly by the Baltic ports. The principal imports are raw cotton, iron and other unwrought metals, tea and machinery; the principal export cereals, which often constitute one-half of the value of the whole exports. The imports from Asia greatly exceed in value the exports thither, and consist chiefly of tea, next after which come tissues, fruits and vegetables, hides and furs. The foreign trade of Russia is chiefly carried on with Great Britain and Germany, the former country receiving above a third of the

exports, and the latter supplying about 40 per cent of the imports. The principal ports are St. Petersburg and Riga on the Baltic, Odessa, Nicolaief, and a few others of less importance on the Black Sea, Taganrog on the Sea of Azof, Astrakhan, Baku, and Kizliar on the Caspian Sea, and Archangel on the White Sea. As regards the number of vessels that enter and clear at Russian ports the Russian shipping ranks first, although it amounts to less than a fourth of the

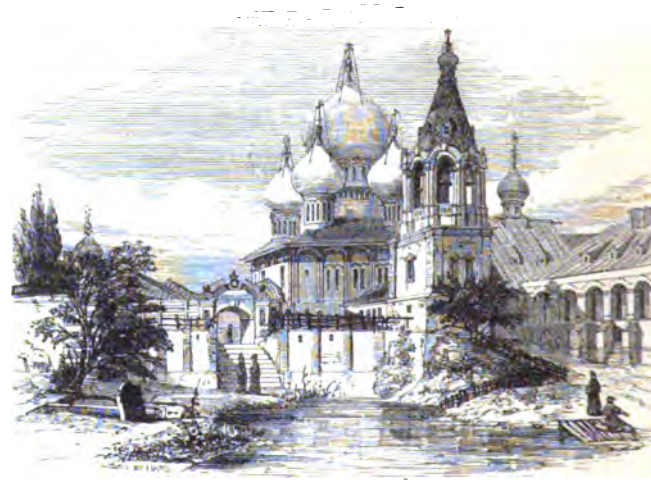
Eupatoria, west coast of the Crimea.

whole, and that under the British flag next; as regards tonnage, on the other hand, the British shipping at Russian ports is ahead of all others.

MONEY, WEIGHTS, AND MEASURES.—The silver *rouble*, of 100 *copecks*, containing 278 grains of fine silver, is equal to about 3*s.* 2*d.* Paper money is in general use, and circulates at a discount greater or less according to circumstances. The standard measure of length is the foot of 12 inches, exactly equal to the British imperial foot. The *arshin*, or ell, contains 28 inches. The *ssashe*, or fathom, is = 7 feet imperial. For measuring distances the *verst* is used, and is = 3500 feet imperial, or very nearly two-thirds of an English mile. The principal land measure is the *deciatine* = 1600 square arshins, or nearly 2·7 acres; it is subdivided into 2400 square *sagenes*, each = 3 square arshins. The *pound* is = 0·902 lb. avoirdupois; the *pood* is = 40 lbs. Russian = 36 lbs. avoirdupois. The *chetvert*, the principal measure for corn, is = 5·77 imperial bushels. Wine is measured by the *oxhuft* = 58½ wine gallons, and the *anker* = 9¾ gallons.

RELIGION AND EDUCATION.—The established religion of Russia is that of the Eastern or Greek Church. The Russian Church is established independently under the emperor as supreme head in all matters of administration. As such the emperor appoints to every office in the church, the bishops and other prelates having only the right of proposing candidates; and he transfers and dismisses persons from their offices. On the other hand, he claims no authority in matters of doctrine. All such matters belong to the domain of the supreme ecclesiastical

court, the Holy Synod, consisting of secular and ecclesiastical dignitaries, metropolitans, and archbishops. The decrees of this court require, however, the approval of the emperor. The church also recognizes the authority of the joint patriarchate and of the councils of the whole Eastern Church in matters of doctrine, and maintains friendly communion with the patriarchates of Constantinople, Jerusalem, Antioch, and Alexandria. The four metropolitans of the church have their seats at St. Petersburg, Kief, Kazan, and Tobolsk in Siberia. The Russian clergy are divided into the secular and monastic clergy, who are distinguished by the people as "white" and "black." The former, the *popes*, are poor and ignorant, and hardly, if at all, raised above the level of their people. Each cultivates his own field like his neighbour the peasant. By his flock the pope is held in little respect, and indeed in the jests and tales of the peasantry he and his wife (for celibacy is prohibited among the secular clergy of the Greek Church) pass for examples of excess in eating and drinking, and of avarice and licentiousness. In the country districts his principal revenue is derived from the reconsecration of the images of the saints on high festival days. The higher clergy are all chosen from the members of the monastic orders, who are bound to celibacy. The services of the church, in which neither organs nor any other musical instruments are made use of, are characterized by an excess of ritual and symbolism. Fasts are more strictly observed than anywhere else in the world. The majority of the population belong to the orthodox Greek Church, within which, however, there are various sects, the members of which are known collectively as *Roskolnicians* or Separatists. These number about 11,000,000 in all, and are divided into two main branches, those with priests and those without them. In addition to the Greek Church there are various other confessions in Russia, all of which are placed under the department of "foreign confessions" belonging to the ministry of the interior. In some parts of the Russian dominions these rival sects predominate, and the following table will give a good idea of the distribution and relative strength of the different creeds:—



Monastery of the Annunciation, Novgorod.

	Russia Proper. Per cent.	Poland. Per cent.	Finland. Per cent.	Caucasia. Per cent.	Siberia. Per cent.	Central Asia. Per cent.
Orthodox Greeks,.....	85·0	0·6	1·8	44·4	88·6	9·5
United Greeks,*.....	—	4·08	—	—	—	—
Roman Catholics,.....	4·4	76·27	0·2	0·54	0·7	—
Armenian Gregorians,	0·05	—	—	12·50	—	—
Protestants, ...	3·7	5·4	98·0†	0·16	0·1	—
Jews, ...	2·9	13·5	—	0·40	0·3	0·1
Mohammedans,.....	3·6	—	—	41·70	1·8	89·8
Heathens, ...	0·39	—	—	0·10	8·4	0·4

* The name given to those who follow the Greek rite, though united to the Roman Catholic Church.
† Lutherans.

Education in Russia Proper, Poland, and Caucasia is still in a very backward condition, the great mass of the population being unable to read. Efforts are now being made to remedy this evil, and have proved to some extent successful; for while in 1860 out of every hundred recruits levied for the army only two were able to read and write, the proportion had risen in 1870 to eleven. Even yet, however, it is estimated that only one in twelve of the children of school age is in attendance at school. In Finland, which has a separate system, education is nearly universal. For the higher education there are eight universities in Russia, namely, at St. Petersburg, Kharkof, Kazan, Kief, Odessa, Warsaw, Moscow, and Dorpat, the last a German one. All of these, except those of St. Petersburg and Odessa, have the four faculties of law, medicine, history and philology, physics and mathematics. Those of St. Petersburg and Odessa have no medical faculty, but the former has one of oriental languages. In Finland there is a Swedish and Finnish university at Helsingfors.

PEOPLE.—Ethnologically the peoples of Russia are comprised under two of the great divisions into which the human race is divided—the Aryan and the Mongolian; but under each a considerable number of varieties are traced. The Aryan stock includes Slavonians, Germans, and Greeks. The Mongolian stock is represented by the Finns and their allies, and by the Kalmucks, who occupy some of the south-eastern steppes, but have lost many of their distinctive features by intermarriage with Aryans. Of the Aryan stock the Slavonians, under the names of Russians, Poles, Lithuanians and Letts, Walachians and Servians, form about four-fifths. Of these, again, the Russians proper form the great body of the population, and are estimated at about 54,000,000. They occupy, with little intermixture, the central provinces between the Dnieper and Volga; form a vast majority in the north, between the Ural Mountains and the White Sea, and, in the south, between the Don and the Dniester; and are found, more or less intermingled with other varieties, in all other parts of the country. They are divided into the three great stems of the Great Russians, Little Russians, and White Russians. The first, numbering about 40,000,000, are found with the least intermixture in the upper and middle districts of the Don and Volga. The Little Russians, numbering about 11,000,000, inhabit the Ukraine and the adjoining governments. In Volhynia and Podolia they are called Red Russians,

and they are precisely the same stock as is found in Galicia and Bukowina under the name of Ruthenians or Russniaks. The White Russians, about 3,000,000 in number, inhabit Vitebsk, Mohilef, and Minsk, and are also met with in Vilna and Grodno. The Russian language is also spoken by the Don Cossacks, a tribe that originated in a mixture of Russians, Poles, and Turks who settled in the twelfth century in the ownerless lands in the south and supported themselves by robbery and the chase, but submitted to the Russians in the middle of the seventeenth century. The Poles are found in the greatest number in their own country. In that part of it which in the dismemberment fell to the share of Russia they amount to about 7,000,000. The Lithuanians are found chiefly in Northern Poland and in the governments of Vilna and Minsk. They are estimated at about 1,500,000. Still farther north are the Letts, or, as they are often called, Kurs, from living chiefly in Kurland. They are also the chief occupants of Livonia, are wholly devoted to agricultural pursuits, and may amount to 500,000. The Walachians, and among them a few Servians, are found only in Bessarabia, between the Dniester and Pruth. Their language is a descendant of Latin, mixed with foreign words. They, too, do not exceed 500,000. The Tchudes, or Finns, though they belong to the Mongolian race, have little or none of the characteristic Mongolian type of countenance, a great improvement having taken place in their physical characteristics in consequence of the advanced civilization to which they have attained. They are of middle size, fair complexion, and generally have light hair and blue eyes. They are settled on both sides of the Gulf of Finland, but on the north of the gulf form the two marked divisions of Finns proper and Laplanders, the former living south and the latter north of lat. 65°. Their total number is about 3,000,000. Widely separated from the western Finns, though the mode of separation is not known, a great number of Tchudic or Finnish tribes are found occupying under various names the western slopes of the Ural Mountains and the banks of the middle Volga. The second great branch of Mongolians inhabiting Russia are the Tatars, who here form three main tribes—the Tatars of Kazan, the Bashkirs, occupying both sides of the Ural Mountains from lat. 56° to 54° N., and the Nogais, occupying a large part of the Crimea and the steppe to the north of it, dispersed over the country east of the Sea of Azof and the northern base of the Caucasus. The German or Teutonic race inhabiting Russia consists chiefly of Germans and Swedes, intermixed with a few Danes. A third branch of Mongolians, the Kalmucks, are found in small numbers in the extreme south-east. The Germans are dispersed over the Baltic provinces south of the Gulf of Finland, among the Letts and Esthonians, where they constitute the greater part of the nobility. They are also numerous in St. Petersburg, Moscow, and other mercantile towns and seaports, and a considerable number of German colonists are settled in the government of Saratof and other parts of the middle Volga. The Swedes are numerous both along the eastern shores of the Gulf of Bothnia and the northern shores of the Gulf of Finland. The Greeks are dispersed over all the southern provinces as merchants, and are the sole occupants of several villages in the Crimea. Jews are seldom found in the central and northern provinces, but are very numerous in ancient Poland,

particularly in the governments of Vilna, Grodno, Volhynia, and Podolsk, where they form the far greater part of the urban population. Their number is supposed to exceed 1,000,000.

The density of the population of Russia varies very much in different localities. The average over the whole country (inclusive of Finland) is about 36 to the square mile. In the forest-clad provinces of the north it is about 4 to the square mile, in the government of Archangel less than 1 to the square mile. In the industrial governments of middle Russia the average number of inhabitants to the square mile is 54; in the luxuriantly fertile governments of the south the number varies from 78 in Penza to 120 in Podolia. In Poland the average density is 122 to the square mile, in Finland 14½.

The social divisions of the Russian people comprise numerous grades of nobility, which are partly hereditary and partly acquired by military and civil service, especially the former, military rank being most highly prized in Russia. Until the present reign the mass of the people were serfs subject to the proprietors of the soil. The Emperors Alexander I. and Nicholas took some initial steps towards the emancipation of this class; but a bold and complete scheme of emancipation was begun and carried out by the present emperor. The decree of emancipation was dated 3d March, 1861, and began to come into execution within two years. There were about 22,000,000 of serfs belonging to private proprietors, and rather more than that number on the crown lands. By an imperial decree of July 8, 1863, lands were granted to the peasants on all the estates of the crown on a forty-nine years' rental equal to the former poll-tax, and as a freehold estate at the expiration of this period. A similar arrangement was made on behalf of the peasants on the lands of private proprietors. The redemption money of the serfs with their land was estimated at sixteen and two-thirds years' purchase of their annual produce. Twenty per cent of this had to be paid by the serfs on procuring their emancipation, the remaining 80 per cent is guaranteed by government, which levies it from the peasantry in a tax extending over forty-nine years. The emancipation of all the serfs on these terms was arranged for by July, 1865, and from that date this form of servitude has ceased to exist in Russia. Since this change the cultivable land in Russia is mainly distributed among three classes. The crown holds nearly 35 per cent, the emancipated peasants about 20, while the remainder, with the exception of mines and town lands, is in the hands of the nobility and other landed proprietors.

From the number of tribes and races just mentioned it is evident that many different languages and a vast variety of dialects must be spoken. The Russian, however, as the vernacular of at least four-fifths of the inhabitants, is by far the most important. It is based on the ancient Slavonic, but has been much modified by the introduction of Greek, Tatar, and Mongolian terms. It has an alphabet of thirty-six letters including two diacritic signs, and in one case two letters for the same sound. The forms of several of the letters are borrowed from the Greek. Its flexions are both numerous and irregular, making the attainment of it by a foreigner extremely difficult; but it is soft, rich, and sonorous, and though long greatly neglected, and hitherto much richer in translations than in original works,

has shown itself fit to be the vehicle of any kind of literature; and, from the attention now paid to it, will probably ere long free itself from one very marked stigma by becoming the court language instead of French, by which the honour has been long usurped. A church dialect was created by the translation into Russ in the tenth century of the books of worship, with the retention of many Greek forms. This dialect remains distinct to the present day, and has considerably modified the vernacular. The Russian language is remarkable for its copiousness, and though numerous foreign words have been introduced into it these have been so completely assimilated as not to detract from the apparent homogeneousness of the language. Its faculty of forming compound words is very great. According to Shishkof as many as 2000 derivatives are often formed from a single root. Diminutives and augmentatives are very numerous. The highly-inflected character of the language admits of great freedom of construction, the connection of a phrase not being dependent on the grammatical order of the words. The language is rich in poetical expressions, and affords unbounded facility for rhyme. There are three principal dialects, the Great Russian, Little Russian (Ruthenian), and White Russian, spoken in the regions inhabited by the populations bearing the same names. The Great Russian is the literary dialect, and is spoken with greatest purity in Moscow and the surrounding district.

Of the other languages spoken in Russia the most important is the Polish, which is a Slavonic language more nearly allied to the Bohemian than any other tongue, and is considerably different from the Russian. In grammatical forms it is richer than any other living Aryan language. Lithuanian, though spoken by only a small section of the population, is interesting as being a distinct member of the Aryan family of languages, and as being among the European members of that family the one which, in the words of E. A. Freeman, "has in many things undergone the least change from the common Aryan tongue from which all set out."

GOVERNMENT AND DEFENCE, &c.—The Emperor of Russia is an absolute ruler, having entire control of the legislative, executive, and judicial functions of government. Since 1797 the dignity of emperor has been hereditary according to the rule of primogeniture with preference to the male line. The administration is conducted under the control of the private cabinet of the empire by four great councils. The council of the empire, established on its present organization in 1810, consists of the ministers *ex officio*, the princes of the imperial house, and an unlimited number of members appointed by the emperor. It meets collectively under a president, and is also divided for administrative purposes into three sections, each of which has a separate president. The sections severally superintend the departments of legislation, civil administration, and finance.

The senate, established by Peter I. in 1711, is the high court of justice of the empire, and controls all the legal tribunals. It is divided into eight sections, which administer the affairs of different provinces. Three sit at Moscow, and five at St. Petersburg. The senate consists of men of rank, not exclusively of the legal profession. Each section is presided over by a lawyer, who signs its decrees as the representative of the emperor. The minister of justice presides in the

meetings of the whole senate. This court has the power to audit public accounts, the patronage of numerous offices, and the right to remonstrate with the emperor, a right first conceded by Alexander I. (1801–1825). The private cabinet of the empire, which controls all the councils, is divided into four departments, the first of which is in immediate communication with the emperor, and controls the others, one of which takes charge of the department of legislation, another of the army and police, and a third of education and ecclesiastical affairs.

Various parts of the empire are governed by different codes, the laws and institutions of Finland and Poland being partly respected, the former having a semi-independent form of government. The provinces are under general governors or viceroys, who exercise a general control of the administration in the name of the emperor. The country is subdivided into communes, which have the free administration of local affairs. Finland has nominally preserved its ancient constitution with a national parliament of four estates, but is really governed by a governor-general and senate appointed by the emperor. Poland was finally incorporated with Russia in 1868.

The sources of revenue are the taxes direct and indirect, the produce of state mines, the revenues of railways and other government undertakings, and the sale of official publications of laws, &c. The budget estimates of revenue are always framed to cover the expenditure, usually with a balance in favour of revenue; but the actual accounts, which are always some years in arrear, always show a deficit, which is covered by loan. The chief items of expenditure are the army and navy and the public debt. Besides the acknowledged or formal state debt entered in the public revenue, there is a forced circulation of paper, guaranteed by government, to a large extent. This very onerous kind of informal taxation has prevailed for a long time in Russia. During the reign of Catharine II. issues of paper roubles to the extent of 200,000,000 were made to cover the annual deficits of revenue. During the protracted war with France the same mode of financing was adopted, and at the close of this period the paper rouble had sunk to one-fourth of its standard value. A financial reform was begun after 1815, and the government made great and creditable efforts to redeem its paper, and in 1843 withdrew the whole of the old issues, but substituted a new paper issue with a forced currency. By an imperial decree of 1st September, 1859, all the banks and loan establishments of the empire were united into a state bank under the control of the minister of finance, and their united capital, together with the state guarantee, forms the basis of the paper circulation. Under this new arrangement the circulation of paper money has been largely increased, while its depreciation has not yet reached more than 10 to 15 per cent; but the vices of a forced circulation, which must already have injuriously affected the trade of the country, cannot fail eventually to make themselves more openly manifest.

ARMY AND NAVY.—The Russian army, as reorganized by a law that came into force in 1874, is recruited mainly by conscription. The conscription is annual, and all men not physically incapacitated who have completed their twentieth year are liable to it. The period of service in the army under the ordinary conscription is fifteen years, six of which are passed in the ordinary

service and nine in the reserve. Those liable to active service remain with the colours as long as is necessary to keep the active force at its required complement, and during the remainder of their period of service are discharged on furlough. Men called to serve in the military conscriptions in Asia pass seven years in active service and three in the reserve. During peace the reserve is only called out for brief periodical drills in their own neighbourhood. The Grand-duchy of Finland, the Cossacks, and other non-Russian populations, are under special laws of military service. The organization of the reserves is enforced at present only in the more populous provinces of European Russia. The total strength of the army on the peace footing is 765,000, and on the war footing 1,200,000. The period of service in the navy is seven years' active service and three years in the reserve. The fleet is distributed in the Baltic, Black Sea, Caspian, Lake of Aral, on the coasts of Siberia, and in the White Sea, the bulk of its strength being in the Baltic.

St. Isaac's Square and the Senate House, St. Petersburg.

CHIEF TOWNS.—St. Petersburg (667,000), the capital of the Russian Empire, was founded by Peter the Great in 1703, on a site chosen by himself at the mouth of the Neva, which here divides into three main branches—the Great Neva on the south, the Great Nevka on the north, and Little Nevka in the middle. The site of St. Petersburg is in many respects unfavourable. It is low and marshy, and the atmosphere is almost constantly charged with moisture, and this circumstance together with the severe frosts of winter causes the stone of which the city is built to be rapidly disintegrated, so that the buildings do not last long. The heat of summer is followed almost without transition by the rigours of winter. The Neva is frozen on an average during five months of the year, and in extreme seasons for seven. Moreover, the town is liable to periodic inundations of the Neva, and some of these have been formidable. The insalubrity of the climate is also great; the mortality of the city is nearly the highest in Europe, and the number of deaths uniformly

exceeds by some thousands that of the births. The external appearance of the city, on the other hand, is in the highest degree imposing. The grandeur of the public buildings, especially of its palaces, the splendour of its churches with their gilded domes, the spaciousness of its streets and squares, the massive solidity of its granite quays, all combine to strike the visitor with astonishment. Of the palaces the principal are the old and new palaces of Mikhailhof; the Winter Palace, first erected in 1731, and rebuilt in fifteen months after being burned down in 1837, one of the largest and most luxurious palaces in Europe, containing vast halls adorned with fine marbles and malachite; and the palace of the Hermitage, communicating with the Winter Palace by galleries, built by Catharine II. and now appropriated to a museum. Of the churches the largest and most costly is that of St. Isaac's, begun by Catharine II. in 1770. The principal thoroughfare in the city is the Nevskoi Prospekt, a magnificent street about 3 miles long and 130 feet wide, lined by numerous public buildings. The imperial library of St. Petersburg is one of the most valuable in the world. It contains, according to different estimates, from 600,000 to 900,000 volumes, 30,000 MSS., and 75,000 engravings. The collection has been drawn chiefly from the Polish libraries, which were unscrupulously plundered to enrich it.

Moscow (in Russian, *Moskwa;* 602,000) is the second town of the Russian Empire, and was its capital and sole imperial residence till the beginning of last century. It is situated in a highly cultivated district on the Moskwa, 400 miles south-east of St. Petersburg, and is surrounded by a wall or earthen rampart, 26 miles in circuit, altogether useless for purposes of defence. A considerable portion of the inclosed space is unoccupied by buildings. The general appearance of the town proper when seen from a favourable point of view is peculiarly striking and picturesque. Its hundreds of churches and convents surmounted by gilt and variously-coloured domes and spires, its imperial and other palaces, its boulevards, gardens, and ponds, and above all, the high walls and numerous stately towers of the Kreml or citadel, produce an effect like that of no other European city. The imperial university of Moscow was founded in 1755 by the Empress Catharine. The foundation of the city of Moscow dates from 1147. It was more than once sacked and burned by the Tatars, and it began to grow in prosperity only in the second half of the fourteenth century, when it became the capital of Muscovy.

Warsaw (308,000), the chief city of Russian Poland, and the capital of the Kingdom of Poland from the middle of the sixteenth century to the final partition of the kingdom in 1795, is built partly on a flat, and partly on a height rising gradually from the left bank of the Vistula, here crossed by a bridge of boats, 1570 feet long, communicating with the suburb of Praga. It consists of the city proper (for the most part very irregularly built and of indifferent appearance), and several suburbs mostly inclosed along with the city proper by a rampart and fosse, while the whole is defended or rather overawed by a vast citadel erected by the Russians. Its university, founded in 1816, was suppressed in 1834, and though reopened in 1864, was thoroughly Russianized five years later. Warsaw is rather a seat of commerce than manufactures, carrying on

a large traffic not only with the interior but also with Thorn and Danzig by means of the Vistula. Odessa (185,000) is the fourth largest of the towns of Russia, and the principal Russian port on the Black Sea. It is situated in the government of Kherson between the mouths of the Dnieper and Dniester, and is a town of quite modern origin, having consisted at the end of last century of only a few houses. It owes its rise to the fact that after the Peace of Jassy by which Bessarabia was ceded to Russia in 1792, it was fixed on as a commercial emporium by Catharine II. The principal trade is in grain, which is mainly exported in British vessels to the United Kingdom. The former Lyceum Richelieu at Odessa, founded in 1817, was raised to the rank of an imperial university in 1865. Kief (127,000) stands picturesquely on the right bank of the Dnieper, here crossed by a magnificent suspension bridge, and properly consists of three towns, each of which has its own fortifications and suburbs. It is a place of extensive trade, and its activity has been greatly increased by the rise of Odessa. The university was founded in 1833. Riga (103,000), after St. Petersburg the chief Russian port on the Baltic, is situated on a sandy flat on both sides of the southern Dwina in the government of Livonia. The principal exports of the place are agricultural products and timber, the principal imports wine, colonial produce, and tissues. Kishinef (102,000), the capital of Bessarabia, on the Biak, has extensive manufactures of woollen cloth and an important commerce with the east. Kazan (86,000), capital of the government of the same name, on the Kazanka about four miles above its junction with the Volga, is a fortified city and the seat of a small university founded in 1803. Nicolaief (83,000) in the government of Kherson and 36 miles north-west of the town of Kherson, at the head of the estuary of the Ingul and Bug, is a town of recent origin, having been founded only in 1791. It is the principal naval station of Russia in the Black Sea, and the seat of a large export trade in grain, which suddenly increased in 1878 from an average value of about £1,300,000 to about £3,000,000. Of the remaining towns of Russia the most celebrated perhaps, though not the next in order of population, are Kronstadt and Nishni-Novgorod. The former, with a population of 47,000, occupying a small island at the narrowest part of the Gulf of Finland, opposite the mouth of the Neva, from which it is about twenty-five miles distant, forms both by its position and the strength of its fortifications the bulwark of the capital, and is the principal naval station in the empire. The celebrity of Nishni-Novgorod or Nishegorod (44,000) is due to its great annual fair, which lasts from June 25th to September 5th O.S., and at which merchandise is annually sold to the value of considerably more than £20,000,000. The principal trade is in corn, flour, and tea, Nishni-Novgorod being the great market for the tea brought overland from China. The town stands at the confluence of the Oka and Volga, and during the continuance of the fair whole towns of boats are formed on these rivers for temporary residence.

HISTORICAL SKETCH.—The first extensive dominion in Russia (so far as is known to history) was founded late in the ninth century by Rurik, one of the chiefs of the Varangians, a Scandinavian tribe that had been called in by the Slavonians to assist them against ruder tribes. This dominion was for the most

part subdivided among members of the family of Rurik, and in the first half of the thirteenth century was almost entirely overthrown by an invasion of Tatars, known as the Golden Horde, under Batu, a grandson of Genghis Khan. The Tatars occupied the whole of the south-east, and rendered the princes of the rest of Russia tributary. At the same time the greater part of Finland was in the hands of the Swedes, Esthonia, Livonia, and Kurland in those of the Teutonic order, and the present Polish provinces with some others formed the Kingdom of Poland. The revival of the Russian monarchy took place in the second half of the fifteenth century under Ivan Vassilievich, prince of Moscow, who put an end to the Tatar ascendency, and reunited the ancient dominions of Russia. The dominion of Ivan was still further extended by his son and grandson, and in the middle of the sixteenth century the eastern boundary of the Russian territory (the principality of Moscow) was nearly the same as the present boundary of Russia in Europe. At this time, however, the territory surrounding the Sea of Azof and extending as far north as the Don formed the Tatar khanate of the Crimea, acknowledging the suzerainty of Turkey, and the grand-principality of Lithuania, corresponding roughly to the governments of Kovno, Vitna, Vitebsk, Pskov, western Smolensk, Mohilef, Minsk, Grodno, Volhynia, Podolia, Kief, northern Kherson, western Ekaterinoslaf, Poltava, and Chernigof, belonged to the Kingdom of Poland, while Sweden and the Teutonic order still retained their former possessions. In the seventeenth century Sweden extended her dominion in the north-west, partly at the expense of Russia, partly at that of Poland, which had meanwhile come into the possession of most of the territory of the Teutonic order. (See SWEDEN.) Kurland at this time formed a separate duchy. The next century, the eighteenth, was one in which Russia made numerous acquisitions. Early in the century it acquired a portion of the Swedish dominions. In 1774, after a war with Turkey, Russia received in the Peace of Kutchuk Kainarji the ports of Kertch, Yenikale, Kinburn, Taganrog, and Azof, and in the same peace Turkey acknowledged the independence of the Tatars of southern Russia. On the part of Russia, however, this independence had no heed paid to it, and in 1783 the Khan of the Crimea was compelled to abdicate. From this date, therefore, the southern boundary of Russia was formed by the Black Sea as far west as the Bug and by the Caucasus except in the extreme south-east, where part of Daghestan was still subject to Persia. In the three partitions of Poland, in 1772, 1793, and 1795, Russia obtained large areas belonging to that kingdom, and the Congress of Vienna in 1814 made these acquisitions still larger. By the Peace of Jassy in 1792 the Russian boundary in the south-west was extended to the Dniester, and in 1795 the duchy of Kurland was also annexed. Further extensions of territory were made in the present century. Besides the increase in Poland already mentioned, Russia acquired from Sweden the remainder of Finland in 1809, and from Turkey Bessarabia in 1812. A portion of this latter territory was retroceded after the Crimean war in 1856, but reacquired by the Treaty of Berlin in 1878. In this century also all those parts of the Caucasian governments which did not belong to the khanate of the Crimea were acquired—mainly from Persia (1801–1828), but in the north-west from Turkey

(1802–1878). The actual reduction of some of the mountain tribes of the Caucasus was not effected, however, till long after their territories had been ceded to Russia by treaty. The latest acquisitions in this quarter also were made under the Treaty of Berlin, which transferred from Turkey to Russia a portion of Armenia, including the fortress of Kars.

FINLAND. Our account of the surface, products, &c., of this grand-principality has already been given in the general notice of Russia. It is only necessary to add here that the capital of the territory is Helsingfors (26,000), a place of remarkable strength, situated on a number of isolated rocks belonging to a peninsula in the Gulf of Finland. It has a capacious harbour, which is regarded as one of the best in the Baltic. Its university was removed here in 1827 from Abo, where it was founded as an academy in 1628 by Gustavus Adolphus, and raised to the rank of a university by Queen Christina in 1640.

THE LIEUTENANCY OF THE CAUCASUS is the name given to the territory under Russian government lying to the south-east of Russia Proper on

Kars.

both the European and the Asiatic side of the Caucasus, between the Black Sea and the Caspian. The shortest distance between these two seas (on the parallel of 42° N.) is about 124 miles. The total area of the lieutenancy (including the district of Armenia acquired in 1878) is 179,527 square miles, and the population about 5,500,000, or about 20 to the square mile.

The Caucasus chain traverses the lieutenancy from north-west to south-east through a length of about 700 miles. Its highest summit is Elbruz, 18,572 feet; and besides it there are three peaks, Koshtan-tau, Dych-tau, and Kazbek, exceeding 16,000 feet, all lying on the European side of the chain, and hence the

highest mountains in Europe. The Caucasus does not form a single chain, but is divided, at least for part of its length, into two, three, or even four chains, which sometimes run parallel to one another, and sometimes meet and form mountain ganglions. In the intervals between these ganglions the mountain chains inclose deep depressions, on one side of which there is always a breach by which the waters collected from the torrents that descend the mountain sides make their escape. On the north side of the principal chain the mountains descend with great abruptness to the naked sandy plain which begins immediately to the north of the Kuban and the Terek and stretches far into the heart of Russia. On the south side the peaks and ridges of the chain have much less appearance of grandeur, as they sink down on that side with much less abruptness and merely form the boundary of a plateau which is itself at an elevation of about 6000 feet above sea-level, and which is only interrupted by the valleys that form the basins of the Kur and the Rion.

The rivers of the Caucasus proper are remarkable for their impetuosity, and for the great quantity of earthy matter and other debris that they carry along with them. The most impetuous of all is the Samur, which descends the northern slope in the eastern part of the chain, and flows by several mouths into the Caspian below Derbent. The rivers of the Armenian plateau, on the other hand, glide for the most part quietly along at the bottom of deep valleys. There are no lakes in the Caucasus proper, but there are many in the plateau, and among these are several crater lakes at elevations of from 5000 to 6500 feet. Lake Gokcha or Sevan, at the height of 6310 feet, has an area of 526 square miles, or two and a half times as great as that of the Lake of Constance.

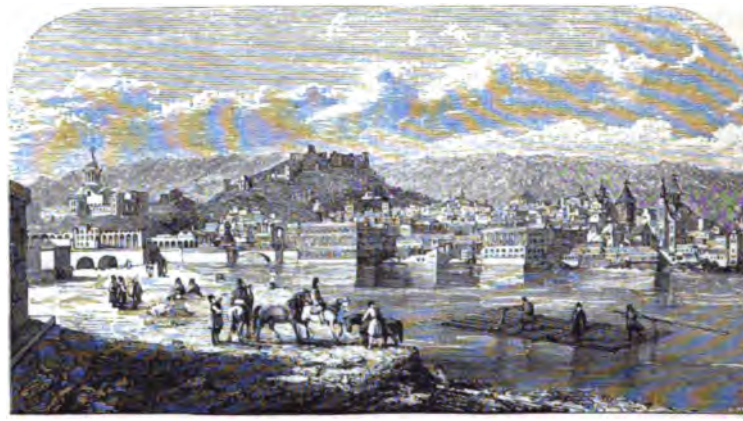
As regards their geological structure the highest peaks of the Caucasus are granitic. The two slopes of the chain present to view first porphyries, often mingled with volcanic rocks of more recent origin (trachytes and dolerites), then crystalline schists, and finally, sedimentary strata which cover their bases and the plains. Cretaceous rocks form the two extremities of the principal chain, and almost the whole mass of the secondary chains, whence they extend on the north as far as the plateau of Stavropol.

There is a remarkable contrast between the vegetation of the north and the south side of the Caucasus. The northern steppes, on which nomadic tribes, diverse in origin but similar in manners and usages, have pitched their tents and pastured their flocks from time immemorial, produce little but grass, and even that liable to be burnt up and converted into dust by drought, while the slopes and valleys on the south, and especially those nearest the Black Sea, bring forth an endless variety of vegetable products. Magnificent forests (chiefly of conifers) cover the mountains sometimes to the height of between 6000 and 7000 feet. On the low grounds there are orchards and vineyards, cornfields and pastures in rich alternation. Grapes and various kinds of fleshy fruit grow spontaneously; and abundant crops are reaped of every description of grain, including rice, as well as of cotton and hemp. Multitudes of wild animals of every description infest the region.

The mineral wealth of the Caucasus is found principally in the granitic and

porphyritic rocks between Elbruz and Kazbek. In the valley of Alaghir on the north slope mines of argentiferous lead are worked. On the south slope there are deposits of iron and manganese, and there are mines of iron and copper in the south-west, and mines of iron, copper, and lead in the mountains of Karabagh, where alum also is found. Rock-salt is found in a vast deposit south of the Aras in the western branch of Mount Ararat, and naphtha abounds in the environs of Baku, at the eastern extremity of the principal chain. In many parts of the region there are thermal springs, the most celebrated of which are those of the village of Braguni on the upper Terek, with a temperature of 207° F.

Of the manufacturing industries of the Caucasus region the only ones that



Tiflis.

have attained considerable magnitude are the working of metals, the making of arms and jewelry, and the weaving of carpets. Domestic manufactures are carried on principally round Akhalzikh, and are chiefly the employment of the women. European factories of various kinds have sprung up at various places.

The inhabitants of the lieutenancy consist of small tribes of various origin and language. Russians proper and Cossacks form about 20 per cent of the whole, and the remainder may be referred to eight principal groups: 1st. The Circassians (Cherkesses) in the basin of the Kuban, a portion of the upper Terek, and south of the Caucasus on the Black Sea from Anapi to Gagri. 2d. The Abassians in the higher valley of the Kuban, and on the opposite side of the Caucasus in the district lying to the east of that occupied by the Circassians. 3d. The Ossetes on the upper Terek, and in a small portion of the opposite slope in the middle of the chain. 4th. The Chechenzes on the middle Terek. 5th. The Lesghians on the Caspian Sea between the Terek and the Samur. 6th. The Georgian-speaking tribes in the basins of the Kur and the Rion, forming a quite peculiar race both in respect of language and physical type. 7th. The Armenians in the basin of the Aras and the tract acquired from Turkey in 1878.

8th. The Tatars or Turkish-speaking tribes on both sides of the great chain, on the Kuma, the lower Terek, and the lower Kur. Intermingled with these are Persians, Jews, Germans, Greeks, &c. Many of the tribes, particularly the Circassians and Georgians, are distinguished for the beauty, symmetry, and strength of their frames, a circumstance which induced Blumenbach to introduce into ethnography the term Caucasian race as a designation of the ideal of the human form. The languages spoken by these tribes are very different from one another, being referred by philologists in some cases to different families. The Ossetian and Armenian tongues are the only ones considered to belong to the Aryan family.

The only town in the lieutenancy containing more than 50,000 inhabitants is Tiflis (104,000), which stands on both banks of the Kur, at the extremity of a defile formed by two ranges of mountains at the meeting-place of the main roads between the north and south of the Caucasus, and now connected by railway with Poti on the Black Sea. When seen from a distance it presents, with its large caravansaries and government buildings, its mosques, and Armenian, Greek, and Roman Catholic churches, a rather imposing appearance; but a near view destroys the charm. The streets are narrow, filthy, and dusty, the houses built of brick mingled with stones and mud, many of them being mere mud-huts. The town, which is of great antiquity, has long been celebrated for its baths, which are the daily resort of both sexes as places of luxury and amusement. The history of the Caucasus is too complicated to be entered on here, and it must suffice to refer the reader to the historical sketch of Russia.

TURKEY.

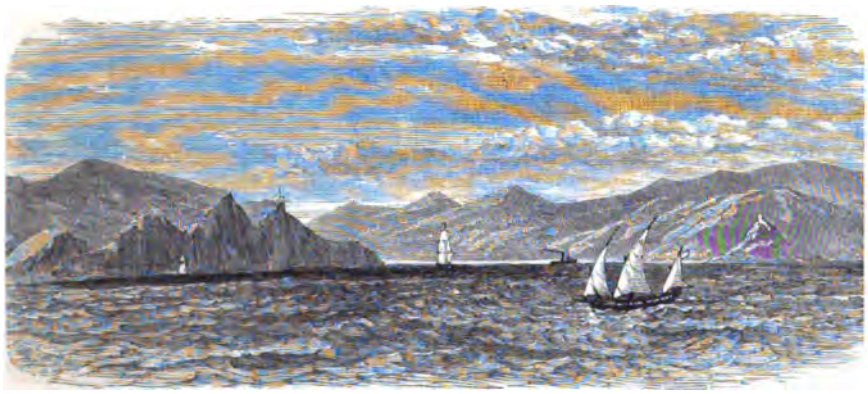
Turkey is the name of an extensive dominion in South-eastern Europe and Asia Minor, and the Ottoman Empire, of which Turkey is the sovereign state, includes also three large dependencies in Africa. The present notice will be confined to Turkey in Europe, but a table is prefixed exhibiting the composition of the whole empire. The length of Turkey in Europe along the parallel of 42° 55′ N. is about 520 miles, the breadth along the meridian of 27° E. about 240 miles. Besides the territory on the mainland Turkey in Europe includes also the island of Candia or Crete (Turkish, *Kirid*), and those of Thaso, Imbro, Samothraki, and Lemno or Stalimene.

DIVISIONS OF THE OTTOMAN EMPIRE.—The following table gives the area and population of the different parts of the Ottoman Empire as they stood after the Treaty of Berlin (July, 1878). After long negotiations a convention between Turkey and Greece providing for the cession by the former to the latter of territory adjoining the Greek frontier and inhabited almost wholly by Greeks was concluded in June, 1881, and by the middle of September all the ceded territory except a section round the Gulf of Volo had been actually occupied by Greece.

	Area in sq. miles.	Population.	Pop. per sq. m.
EUROPE:—			
Immediate possessions, ...	68,896	5,044,000	73
Eastern Roumelia (autonomous province), ...	13,663	751,000	55
Bulgaria (tributary principality), ...	24,659	1,859,000	75
Bosnia, Herzegovina, and the sanjak of Novi-Bazar (in the occupation of Austria), ...	24,247	1,212,000	50
	131,465	**8,866,000**	**67**
ASIA:—			
Immediate possessions, ...	729,484	17,500,000	24
Samos (tributary principality), ...	212	37,080	175
	729,696	**17,537,080**	**24**
AFRICA:—			
Viceroyalty of Egypt, ...	1,051,143	17,386,000	17
Vilayet of Tripoli, ...	344,434	1,010,000	3
Regency of Tunis, ...	45,716	2,100,000	46
	1,441,293	**20,496,000**	**14**
Total (in round numbers),.....	**2,302,500**	**47,000,000**	**20**

PHYSICAL FEATURES.—Turkey is traversed in different directions by numerous mountain chains, but three main systems may be distinguished. The first of these is the Hæmus or Balkan range, which stretches from west to east from the valley of the Timok on the borders of Bulgaria and Servia, to Cape Emineh on the Black Sea, and has its highest part between lon. 24° and 25° E., where nearly every height exceeds 5500 feet. The second of these systems is called in a loose way the Pindus range, and runs from north to south, starting from the Shardagh at the sources of the Vardar. Some of its peaks rise to about 7000 feet in height; and it forms the watershed between the Ægean Sea in the east and the Ionian and Adriatic Seas in the west, and separates Thessaly from Epirus, Macedonia from Albania. The third great mountain system starts from the same nucleus as the Pindus, and proceeds north-westwards under various names into Bosnia and Herzegovina, which are covered with the ranges belonging to it. In addition to these main systems there are several smaller chains and groups, such as the Rhodope chain forming the watershed between the Maritsa and the Kara-Su in Rumili, and having a general elevation of about 5500 feet, the Acroceraunian or Chika Mountains in the west, and the group of Olympus (9750 feet), Ossa, and Pelion in the east, and there are numerous offshoots from the three main systems themselves. The last-mentioned group belongs to the territory assigned by the conference of 1880 to Greece. The most important river basin of Turkey is that which drains into the Archipelago or Ægean Sea, which receives the Salamvria from Thessaly, the Indje, Kara-Su, Vardar and Struma from Macedonia, and the Maritza from Thrace. The Adriatic and Ionian Seas receive from Turkey no rivers worthy of notice, except the comparatively insignificant Albanian Drin, Scombi, and Vogatza. The Sea of Marmora receives only a few mountain torrents. Considering the mountainous character

of the country, and its numerous perennial streams fed from snowy heights, it is remarkable that it does not possess a single lake worthy of the name, with the exception perhaps of those of Ochrida in the east, and of Scutari in the north-west of Albania. The principal plains of Turkey, which are remarkable for their fertility and beauty, occur in the south of Macedonia, Thessaly, and the south-west of Albania. The Thessalian plain was believed by the ancients to have been at one time the bed of a lake until by some convulsion of nature the opening was made in the north-east, by which the waters of the Peneios (now Salamvria) make their escape through the beautiful vale of Tempe to the sea. Both it and the plain in south-western Albania are included within the new boundary



The Bosporus, the eastern entrance to the Sea of Marmora.

fixed for Greece. Candia or Crete is traversed throughout its whole length by a range of mountains culminating in Mount Psiloriti (the ancient Ida), 7670 feet high, and declining on the north gradually to a fertile coast, while on the south it sinks rapidly to a rocky shore.

GEOLOGY AND MINERALS.—The greater part of Turkey south of the Balkans and east of the Pindus chain, including Shardagh and the Rhodope Mountains, consists of eruptive rocks, chiefly gneiss, granite, and trachyte. The remainder of the mountainous region of Turkey in the north and west belongs mainly to the chalk formation, the Balkans consisting on the north side, according to Hochstetter, of a mountain plateau composed of limestone, sandstone, and marls, descending to the plain by gentle slopes or in successive terraces. The plain in the north forming a strip along the right bank of the Danube is of miocene origin, and there is a similar strip along the Save in the north of the Bosnian Mountains. Elsewhere the miocene strata are found only in small patches, the largest of which are at the head of the Gulf of Saloniki, and on both sides of the Beratino about the same latitude on the west coast. A triangular tract of eocene rocks occurs between Constantinople, Adrianople, and Gallipoli. In mineral wealth Turkey is far from deficient, but mining is pursued only to a very limited extent. Coal, iron, lead, zinc, copper, gold, and silver are all produced in small quantities. Salt is obtained from the sea, especially in the

island of Crete, and fine marble is quarried in several of the Turkish islands in the Ægean Sea. Armenian bole is procured from the island of Stalimene.

CLIMATE.—Owing partly to the elevation of the surface, and partly to its exposure to the north-eastern blasts from the interior of Russia, the climate is not so mild as its latitude might seem to indicate, and is, moreover, subject to sudden and violent fluctuations. The winter is very severe; on the other hand, the summer heat is excessive, especially in Albania and other districts which possess a shelter on the north, and even in the more exposed districts the vintage becomes general before the end of July. In Crete the summer is tempered by cool winds from the north, while the winter is distinguished only by a heavy rainfall.

AGRICULTURE, &c.—The soil and climate of Turkey are admirably adapted for the production of the ordinary cereals; and the grain produced at present fully indicates the immense quantities that might be produced under a better system of cultivation. The principal grains grown are maize, wheat, and barley. In various districts rice, millet, and buckwheat are also produced. Bad as the agriculture is, the produce of these cereals is not only amply sufficient for the home consumption, but yields considerable quantities for exportation. The cultivation of tobacco is very general, and in many parts is a great source of wealth. It has its principal seats in the vilayets of Saloniki and Yanina, that is, in the ancient Macedonia, Thessaly, and Epirus, where also the cotton-plant is cultivated. Flax, hemp, sesame, and madder are also grown in large quantities. Among the fruits of Turkey the plums (especially those of Bosnia) and figs are highly esteemed. The cultivation of the olive is carried on along the coasts of the Archipelago and the Adriatic, as well as on the island of Crete, and in these parts is one of the most important branches of agriculture. Wine is an important product in many districts, and much attention is paid, especially in Thrace, to the growing of roses, for the extraction of otto. The forests of Turkey are greatly mismanaged, the waste of timber being enormous. Some provinces, especially Bosnia and the island of Crete, are still clothed here and there with dense woods, but in others wood is almost entirely wanting. Among domestic animals the most important is the sheep, which is reared in large numbers in Albania, whence great flocks are driven in the spring of every year to be fattened on the pastures of Macedonia and Thessaly. The buffalo is largely used as a beast of burden.

According to the precepts of the Koran the state in all Mohammedan countries claims the superiority over the whole of the soil. On the conquest of any territory the soil was always divided into three parts, one of which fell to the state, one to the mosques and religious foundations (the *vakoof*), and the remaining part to private individuals. The territory in the hands of private owners can be inherited or sold, but on the death of a proprietor without direct or collateral heirs reverts to the state. Foreigners have been permitted to acquire landed property in Turkey only since 1867.

MANUFACTURES.—These now occupy a very secondary place in Turkey. There are scarcely any large manufactories except in Constantinople, and even

there they are few. Elsewhere manufactures are either a domestic employment or are subsidiary to agriculture. At one time Western Europe obtained from Turkey a variety of costly manufactured articles (silks, carpets, various kinds of earthenware, &c.); but not only has this ceased to be the case (chiefly in consequence of the extortion of Turkish officials), but Turkey is now supplied with these and other articles from Western Europe. The efforts of foreigners to re-establish manufacturing industries on a large scale in Turkey have again and again been thwarted by the hostility of the provincial governors, while native capital finds a more profitable employment in farming the revenues, and in other ways equally far from being beneficial to the country generally.

COMMERCE AND COMMUNICATIONS.—From the absence of manufactures it follows that the exports of Turkey are chiefly agricultural produce of one kind or another, while the imports are cotton, woollen, and silk goods, metals, iron, steel, and glass wares, and various other manufactured articles. No official returns of the commerce of Turkey are issued. The commerce of Turkey in Europe centres at Constantinople, and nearly a third of the shipping of that port (estimated by the tonnage) is British. The principal railways in European Turkey are those from Varna to Rustchuk, from Constantinople to Adrianople, and from Saloniki to Uskub. The total length of the railways is equal to about 1 mile for every 170 square miles of surface. The number of private letters and post-cards annually carried by the post-office is equal to about one for every three, and that of private telegrams to about one for every nineteen of the population.

MONEY, WEIGHTS, AND MEASURES.—Accounts are usually kept in *grush* or *piastres*, the value of which is something less than $2\frac{1}{2}d.$ sterling. A hundred piastres make a Turkish *lira* or gold *mejidié* (very slightly more than 18*s.* in value), and 500 make a "purse." The unit of weight is the *oke*, equal to about $2\frac{5}{6}$ lbs. avoirdupois; it is divided into 400 *drem*. For larger weights the *cantar* of 44 okes is used. Liquids are sold by weight, but the principal dry measure is the *kilo*, which is different in almost every district. At Constantinople 100 kilos are equal to $12\frac{3}{4}$ imperial quarters. The usual linear measure is the *arshin*, equal to 28 inches.

RELIGION AND EDUCATION.—The established religion of Turkey is Mohammedanism. It is the religion of the Turks proper throughout the country, and also of a large number of Bosnians, Bulgarians, and Albanians, and even of a considerable number of Greeks on the island of Crete, where about a third of the inhabitants are said to be Mohammedans. Christianity, under the Greek form, is, however, professed by a large majority of the Greeks, Walachians, Bosnians, and Bulgarians, and more partially by Albanians. The Roman Catholic Church claims a considerable number of the last mentioned, as also of the Bosnians. At the census of the population of Bosnia and Herzegovina made by the Austrians in 1880 it was found that more than a sixth of the population were Roman Catholics, and that of the remainder upwards of a half were orthodox Greeks, and the rest almost entirely Mohammedans.

The educational system of Turkey is at present in process of re-organization,

in accordance with the law of 15th September, 1869, providing for the erection of elementary schools for boys and girls in every commune, and of secondary schools in the larger towns; for the establishment of technical schools and training schools for teachers; and for the foundation of a university at Constantinople after the German model. The university was opened on the 20th of February, 1870, and bears the title "Dar ül Fenun," or Seat of the Sciences.

PEOPLE, &c.—The inhabitants, consisting of various races accidentally brought into juxtaposition or political relationship by immigration and conquest, present none of the kindred features which combine to form a national character. First in order are the Osmanli Turks, who, as the dominant race, are diffused over the country, but are most numerous in the east, and especially in the eastern part of the principality of Bulgaria. They live generally in towns employed in various trades, and are never found as agriculturists, except in districts where they have settled in great numbers. Accustomed to obtain their wives and supply their harems from other races, they now constitute a very heterogeneous mixture, retaining few of the leading features of their ancient national character, though the masses are still distinguished by Asiatic indolence, as well as by a certain degree of good nature, frankness, and hospitality. Their highest enjoyment is to allow the time to pass indolently and luxuriously away, and their great places of resort are baths and coffee-rooms. The former are used universally by both sexes and all classes; the latter, placed often in the vicinity of natural or artificial fountains, shaded by trees, and open to the sky, may be seen crowded at all times by visitors, in all forms of listless attitudes, apparently enjoying the highest happiness of which their nature seems capable, from such simple indulgences as a cup of coffee or a tobacco or opium pipe. The only striking contrast to such phlegmatic manifestations is presented by the general fondness for children, and the strong attachment of children to their parents, both of which affections are exemplified in numerous ways.

Mosque of Sultan Valide at Constantinople.

The Turkish language belongs to the Turanian family of languages, which is spread over all middle and northern Asia from the Caspian Sea to the frontiers

of China, and which has been extended to more western regions by the conquests of the Osmanli Turks. The language of this branch of the race is what is specially known in the West as Turkish. While the eastern Turkish or Jagatai dialect is rough and hard, and preserves many archaic words and grammatical forms, the Osman Turkish is softer and more melodious, and at the same time more polished as to its inflections. On the other hand, the vocabulary of native Turkish in the western dialect is very meagre, at any rate in the higher diction. The defect is made up by borrowing to an unlimited extent from the Arabic and Persian, so that the Turkish language as spoken and written in the Ottoman Empire presents the singular phenomenon of having its most important elements derived from the three great groups of languages—Turanian, Semitic, and Indo-European. This large importation of foreign words has had a very injurious influence on the language.

Turkish Women in a Cemetery.

The Greeks form the bulk of the population in Thessaly, southern Albania, a considerable district north of the Sea of Marmora, along the northern shore of the Ægean, and on the islands, and constitute to a very considerable extent the mercantile and trading community of Turkey, more especially in the seaports. The inhabitants of the mountains of Crete, known as the Sphakiotes, claim to be the direct descendants of the ancient Hellenic inhabitants of the island, and still speak a language resembling the ancient Doric. In the plains of Crete the population contains a large admixture of Arabs, Venetians, Armenians, Albanians, and Turks. Arnauts (as they are called by the Turks), or Skipetars, that is, mountaineers (as they are called by themselves) are found throughout Albania, but considerably mixed in the south with Greeks. They are the descendants of the people who have been settled in the mountains of Epirus from the earliest times, and speak a language considered by Bopp to be an independent branch of the Indo-European family of tongues. In some of the mountains of Albania and Thessaly a tribe of Roumanians bearing the name of Zinzari is found. The north-west (the former vilayet of Bosnia) is occupied by Servians; and Bulgarians inhabit the district south of the Danube and east of Servia and Albania. Both of these peoples are in the main of Slavonic (Slovenian) origin, but the Bulgarians take their name from a tribe of a different race (according to some Finnish, according to others Turkish), who in the seventh century conquered the eastern Slovenians, but

ultimately adopted the language and manners of the people whom they had conquered and settled amongst. Armenians are settled as traders in all the larger towns. After the conquest of Circassia by the Russians in 1859 large numbers of Circassians emigrated from their own land and found a refuge in Turkey, where they established themselves principally in Bulgaria and Thessaly. Regarding the proportion in which these different nationalities are to be found in Turkey it is impossible to give any trustworthy information. There never has been any enumeration to serve as a basis for estimates, and the estimates that have been made by different statisticians differ very widely among themselves. All seem to be agreed, however, in representing the Turks proper as forming by no means the largest section of the population, as being indeed very much less numerous both than the Bulgarians and pure Greeks. Since the outbreak of the Russo-Turkish war of 1877–78 a series of migrations of different sections of the population has been going on, resulting in a considerable alteration in the distribution of the various nationalities. It is said that by the end of 1878 the Turkish and Circassian elements had almost entirely disappeared from Western Bulgaria and from Eastern Roumelia between the Balkans and the Rhodope chain, the Circassians also from the eastern districts. Numbers of the Turks afterwards returned to Eastern Roumelia, but in the autumn of 1879 a new emigration of the Turkish population began from Bulgaria, the emigrants proceeding partly to the Dobrudsha, partly to Constantinople and Asia Minor.

GOVERNMENT AND DEFENCE, &c.—The government of Turkey is nominally a constitutional monarchy, but in reality despotic. Constitutions have been granted at various times in recent years; the first in 1856 and the last in November, 1876. By the latter the powers usually exercised by the parliaments of the states of Western Europe were confided to a general assembly composed of two chambers; the upper chamber consisting of members nominated by the sultan, and the lower of deputies elected by the people; but even when this assembly is in session its decrees have little heed paid to them, and for the most part the assembly is not summoned at all. The monarch, usually designated by the titles of sultan, grand-seignior, or padishah, is regarded by the Turks as the khalif or head of Islam, and is addressed by European courts as majesty or highness. His government is often designated as the Sublime Porte. The sovereignty is hereditary in the family of Osman, the presumptive heir being the eldest of the princes of that family. The dignity of the sultan is conceived to be too transcendent to allow him to enter into the married relation, and he has therefore no proper wives. Among the females of his harem, however, there is a gradation of rank. From four to seven, bearing the title of *kadin*, take precedence of all the others, while a still higher place and influence are assigned both to the mother of the sultan and to the mother of his presumptive heir.

The public officers who conduct the administration under the sultan are divided into three classes. The first class is that of law, which, being founded entirely on the Koran, makes no distinction between religious and civil, and, accordingly, includes all persons who discharge either ecclesiastical or judicial functions. At their head is the Sheikh-ül-Islam. The second class consists of

the officials of the pen or the members of administration, properly so called. At their head is the grand-vizier or Sadr-azam, who is regarded as the centre of all administrative functions, domestic and foreign. The third class includes all the officials of the sword, or those who preside over the army and navy, the head of the former being the Seraskier or minister of war, and of the latter the Capudan Pasha or high-admiral and minister of marine. Mufti is the title of the legal members of the councils of war, marine, police, &c., as well as of the councils of provinces, districts, and towns. All magistrates and officers of chancery bear the title of effendi. Superior officers and sons of pashas have the honorary title of bey. Lower grades of officials bear the title of aga. The supreme deliberative council is the divan, which is divided into eight ministerial departments. The whole of the empire is divided into vilayets, or governments, and sub-divided into sanjaks, or provinces, and kazas, or districts. A vali, or general governor, who is assisted by a council, is placed at the head of each vilayet.

The Treaty of Berlin of July 13, 1878, which conferred independence on the former tributary principalities of Roumania and Servia, withdrew from Turkish administration Bulgaria, Eastern Roumelia, and Bosnia and Herzegovina, which all still belong to Turkey at least in name. **Bulgaria**, under which name was included by no means the whole territory occupied by Bulgarians, but merely the tract lying between the Balkans and the Danube on the south and north, and the Black Sea and Servia on the east and west, was erected into a principality tributary to Turkey; and in 1879 a constituent assembly, elected for the purpose, nominated a prince and drew up a constitution for the new state. This constitution vests the legislative authority in a single chamber called the national assembly of Bulgaria, the members of which are elected for four years by universal manhood suffrage at the rate of one member to every 20,000 of the population. **Eastern Roumelia**, which is the name given by the Treaty of Berlin to the tract south of the Balkans, also mainly inhabited by Bulgarians, was made an autonomous or self-governing province. It is placed under the rule of a Christian governor-general nominated by the Porte with the consent of the great powers, and holding office for a term of five years. According to the constitution drawn up by a national convention in 1879, the legislative power is placed in the hands of a single chamber, called the provincial assembly, and consisting of 55 members—9 official, 36 elected, and 10 nominated by the governor-general. Half of the elected members vacate their seats every two years. The electors are all men of full age and of Roumelian nationality possessing a small property qualification. **Bosnia and Herzegovina** were placed under the administration of Austro-Hungary, but in a convention concluded between the Porte and Austro-Hungary in April, 1879, it was expressly recognized by the latter power that the Porte still retained the "sovereignty" in these provinces. The Turkish colours were still to be hoisted on the minarets of the mosques, and the Turkish coins still to circulate, but no part of the revenue of the two provinces was to go to Constantinople. The **Sanjak of Novi-bazar** is also occupied by Austro-Hungary under the Berlin treaty "in order to ensure the

maintenance of the new political status as well as the liberty and security of the communications;" but it remains under Turkish administration.

Military service is obligatory on all Mohammedans. The service lasts twenty years: four in the active army, two in the first reserve, six in the second reserve, and eight in the last reserve. Adherents of other religions than Islam may be exempted from service on land, but are bound to serve in the fleet if called upon to do so. Besides the regular army there are irregular troops called Bashi-Bazouks, who have more than once made themselves notorious by the atrocities of which they have been guilty.

Bashi-Bazouks

The financial condition of Turkey is thoroughly unsound. Since 1850 there has been a constant deficiency in the revenue, and this deficiency is calculated at several millions annually for recent years. In 1854 a foreign debt was contracted for the first time, and since that date has grown rapidly. In July, 1876, it was announced by the Turkish government that no payment of interest would be made until the internal affairs of the empire became more settled. In addition to the foreign debt the country is burdened with an internal and floating debt of uncertain amount, as well as with an issue of paper money in the form of *caimés*, or assignats, which have been put into forced circulation in immense quantities since July, 1876.

CHIEF TOWNS.—The capital of Turkey in Europe and the whole Ottoman Empire is Constantinople, called by the Turks *Stamboul* and by the Greeks *Istampoli*, both names corruptions of the Greek *eis ten polin*, meaning "into the city." The name by which it is generally known throughout the civilized world is derived from the emperor Constantine the Great, who founded the city on the site of the ancient Byzantium in 328 A.D., and made it the capital of the Roman

Empire. In choosing this site the emperor showed admirable judgment, for there is not a city in the world more favourably situated. It stands picturesquely on an undulating declivity or series of gentle hills at the eastern extremity of a triangular promontory in the south-east of the mainland of Turkey, having the Sea of Marmora and the Bosporus on the south and east, and the Golden Horn, an inlet of the latter of about six miles in length, on the north. It is thus surrounded by water on all sides excepting the west, and has a sea front of about eight miles altogether in extent. The Golden Horn, forms the harbour, and is capable of containing 1200 large ships, which may load and unload along

Constantinople from Miseri's Hotel, Scutari in the distance.

the quays. On the opposite side of the Golden Horn and also occupying the extremity of a promontory, the peninsula of Pera, are situated the extensive suburbs of Galata, Pera, and Tophana; and on the Asiatic side of the Bosporus stands the beautiful town of Scutari, which is in reality another suburb of Constantinople, and is included under the same administration with the latter city. Fanal or Fanar is the name of the quarter occupied by the Greeks, who are hence known as Fanariotes. The streets of the city are extremely narrow, dark, dirty, and ill-paved, and so crooked that hardly any two of them run for any length parallel to each other, the whole seeming one vast and incomprehensible labyrinth of filthy lanes. The houses are generally low and ill-built, consisting of wood and earth, in some cases with a foundation eight or ten feet high of rough unhewn stone. A far-projecting roof surmounted by a cupola which commands a distant view of the country, covers the whole. The windows proper look into an inner court, while those which look out on the street are

strictly closed with a cane lattice. Wares of all kinds are exposed for sale in bazaars, some open and some covered, and each allotted to a particular trade or class of merchandise. The Seraglio or palace of the sultan with its gardens and groves occupies a large space at the extreme north-east point of the promontory on which the city stands. Of the numerous mosques the most celebrated is that of St. Sophia (originally a Christian church, and the most ancient in the city), surmounted by twenty domes of equal size curiously incrusted with various figures and devices in mosaic. It stands in an open square paved with marble and shaded with plane-trees. No city in the world has undergone more sieges than Constantinople; yet it has only been taken thrice, first in 1204 by the Crusaders, next in 1261, when it was recovered by the Byzantime Greeks, and then on the 29th of May, 1453, by the Turks under Mohammed II., an event by which the extinction of the Eastern Roman Empire was completed. The most probable estimate of the population of Constantinople is about 600,000.

Saloniki (population estimated at from 60,000 to 80,000), the ancient Thessalonica, is a sea-port city finely situated on the acclivity of a steep hill at the head of gulf of the same name in the north-west of the Ægean Sea. It is surrounded by lofty stone walls about five miles in circuit which ascend from the sea in a triangular form, and is surmounted by a fortress. Adrianople (Turkish, *Edreneh* or *Edirne;* about 60,000) stands on the Maritza (the ancient Hebrus), about 135 miles west-north-west of Constantinople. It owes its name to the emperor Hadrian, who rebuilt it in the second century after Christ. It came into the hands of the Turks in 1361, and was the residence of the Turkish rulers till the capture of Constantinople. Seraïevo or Bosna-Serai (about 50,000), the capital of Bosnia, on the Migliazza, is a well-built town, though most of its houses are of wood. The town owes its name to a *serai* or palace erected by Mohammed II. It is the centre of the commerce between Turkey, Dalmatia, Croatia, and South Germany. Philippopolis (about 28,000), the largest town in eastern Roumelia, is situated on the Maritza in the west of the province. It is called by the Turks *Filibe* and by the Bulgarians *Plivdor*, and owes the name of Philippopolis to Philip II. of Macedon, who rebuilt it. The province in which it is situated was in 1876 the scene of terrible massacres of the Bulgarians by the Turks. Sofia (18,000), the present capital of Bulgaria, stands in a plain on the Bogana near the northern foot of the Balkans. It was built by the emperor Justinian on the site of the ancient Sardica. Rustchuk, on the Danube, in the same principality, has a population of 23,000; Widdin, on the same river, 19,000. Tirnova, the former capital (12,000), occupies a rocky site, singularly intersected by chasms and fissures, in the heart of the principality. Candia (12,000), the capital of the island of Crete, is memorable on account of the protracted siege it endured at the hands of the Turks in the seventeenth century. The siege lasted for upwards of twenty years; and it was only when the city was in ruins, its walls fairly battered down, and every means of defence exhausted, that its Christian defenders at last surrendered (September 27, 1669).

HISTORICAL SKETCH.—In ancient times the entire peninsula of which Turkey forms a part belonged to the Roman Empire. The portion north of

the Danube, including Roumania, Transylvania, and the Russian province of Bessarabia, formed the province of Dacia, which was conquered by Trajan in the beginning of the second century, but abandoned by Aurelian about 270. To the south of that lay Mœsia, corresponding to the present Servia and the principality of Bulgaria; and to the south of Mœsia lay the province of Thrace in the east and Macedonia in the west. West of Mœsia and Macedonia the province of Illyricum included the whole territory from the north of the modern Bosnia to Avlona in Albania; and south of it lay the province of Epirus, while Thessaly was the province immediately to the south of Macedonia. The present kingdom of Greece was a separate province under the name of Achaia. The eastern Roman Empire continued to exist for centuries after the fall of the western, but it gradually lost ground through the inroads of barbarous tribes. From the seventh century downwards the empire was frequently at war with the Servians and Bulgarians, who formed kingdoms within the Roman frontiers. Two Servian and three Bulgarian kingdoms arose in succession. The first Servian kingdom, embracing in its most flourishing period the whole of the north-west of the peninsula, lasted from the seventh to early in the eleventh century, when it was overthrown by the Greek Emperor Basilius II. The second, formed at the close of the eleventh century, extended in the middle of the fourteenth century over Macedonia, Albania, Thessaly, Northern Greece, and Albania, but before the close of that century was overthrown by the Turks. The first Bulgarian kingdom was founded about the end of the seventh century, in the beginning of the tenth century embraced the greater part of the peninsula, but about 970 was destroyed by the Byzantine emperor. The second was founded about 977 in Macedonia, with Ochrida for its capital, and existed for only about forty years in constant warfare with the Byzantine Empire, which finally subjugated it. The third (having Tirnova for its capital) was founded near the close of the twelfth century in the region now forming the principality of Bulgaria, in the middle of the fourteenth century was reduced to subjection by the second Servian kingdom, and was finally extinguished by the Turks in 1393. The Turks first gained a footing in Europe in 1355, and before the close of the same century they had conquered almost the whole of the peninsula and imposed tribute on the Byzantine Empire. In 1453 they put an end to the empire by the capture of Constantinople. Between 1455 and 1473 they reduced Greece to subjection, and in 1477–78 conquered Albania. From this time the Turks remained masters of almost the whole peninsula till the present century, though the Morea was in the hands of the Venetians for about thirty years at the end of the seventeenth and beginning of the eighteenth century. The island of Crete, which was held by Venice from the beginning of the thirteenth century, was occupied by the Turks only in the middle of the seventeenth century. In 1830 the Kingdom of Greece with the aid of the great powers obtained its independence. Servia, after numerous vicissitudes, achieved for itself early in the present century the position of a principality tributary to Turkey, but with an independent government, a position which was recognized in the Peace of Paris in 1856. The same peace erected the Danubian provinces of Walachia and

Moldavia, which had placed themselves under the protection of the Porte about the beginning of the sixteenth century, into tributary principalities, and in 1861 the two were united to form the Principality of Roumania. The present settlement of Turkey dates from the Peace of Berlin of July 13, 1878, which declared the independence of Roumania and Servia, gave to the former the Dobrudsha in exchange for a portion of Bessarabia ceded to it by Russia in 1856, but now restored to the latter power, enlarged the area of Servia and also of Montenegro, where a Servian tribe had maintained its independence against the Turks since the overthrow of the second Servian kingdom in 1389, and constituted the tributary principality of Bulgaria and the self-governing province of Eastern Roumelia.

ROUMANIA.

Roumania is an independent kingdom lying between Russia, Turkey, and Austro-Hungary, from the last of which it is separated by the Carpathian Mountains. It is composed of the two former principalities of Walachia (in the south-west) and Moldavia (in the north-east), which were united in 1861. Its greatest length, east to west, is about 330 miles; greatest breadth, north to south, about 300 miles; its area is 49,262 square miles; population about 5,376,000.

The general surface of the country, except on the Austro-Hungarian frontier and in the Dobrudsha, may be described as composed of undulating plains of great beauty and vast extent, covered with luxuriant crops of grass. Geologically it consists almost entirely of miocene deposits. The Dobrudsha, on the other hand, is for the most part low and in the east marshy, and geologically consists in the main of eruptive rocks. It contains, however, many fertile spots, but in the summer is burnt up and resembles a desert, while in the spring from the melting of the snows the soil takes the appearance of a vast muddy slough. The drainage of the kingdom belongs entirely to the basin of the Danube, which separates it from Bulgaria as far as the Dobrudsha. The climate is warm in summer but severe in winter, the Danube and its tributaries being regularly frozen over for about six weeks every year. The soil is remarkable for its fertility, and with few exceptions the whole kingdom would admit of being cultivated like a garden. Nevertheless only about one-third of the entire surface is under the plough or in vineyards, but wherever agriculture is pursued excellent crops are raised in abundance, in spite of the imperfection in the methods of cultivation. The principal crops are wheat and maize; but barley, millet, tobacco, hops, flax, and sugar-beet are also extensively grown. Some of the wines are much prized, especially the white wines of the mountains. By far the greater portion of the country is in pasture, on which vast numbers of cattle, horses, sheep, and goats are reared. In the Dobrudsha the inhabitants support themselves mainly by the rearing of sheep and buffaloes. The minerals of the country include salt, petroleum, amber, marble and other stones, all of which are utilized to some extent and the first two to a considerable extent, besides silver, lead, iron, copper, and other metals, as well as coal, none of which are yet worked. The manufactures

are insignificant. The internal trade is greatly impeded by the large number of excise duties levied by the towns. There is a large overland foreign trade, chiefly in cattle, with the surrounding countries, and likewise a considerable transmarine trade with Germany, Russia, Great Britain, and other countries through the port of Galatz. The chief export is grain. The total length of the Roumanian railways is equal to about one mile for every 57 square miles of surface. The number of private letters and post-cards annually carried by the post-office is equal to about three for every two persons, and the number of the private telegrams to about one for every 5½ persons. The French decimal system of weights and measures was introduced into Roumania in 1876. The franc is called *lei*.

The established religion of Roumania is that of the Greek Church, to which about 97 per cent of the population belongs. At the head of the clergy stand the metropolitan Archbishops of Moldavia and Walachia, the latter of whom is primate of Roumania. The lower clergy differ little in attainments and appearance from the general body of the people, and, as in Russia, follow the same pursuits as the rest of the people when not engaged in their clerical duties. Each bishop is assisted by a council of clergy, and has a seminary for priests. In 1863 the national finances were so low that the government was compelled to appropriate the estates of the monasteries, whose revenues amounted to about a third of that of the state, allowing in return a sum of about £700,000 for the support of the religious communities. It was determined that the balance should be devoted to the support of schools, hospitals, the relief of the poor, &c. Education is gratuitous and, according to law, compulsory. In reality, however, the school-attendance is very meagre even in the towns, while in the country districts elementary education can hardly be said to exist at all. For the higher education there are two universities, one at Bucharest and one at Jassy.

The inhabitants of Roumania claim to be the descendants of a colony of Romans located here by the Emperor Trajan, and call themselves Romeni. The race is, however, far from being an unmixed one, being modified by Greek, Gothic, Slavic, and Turkish elements. This mixture makes itself apparent in their language, three-fourths of the words of which are almost pure Latin; among words in common use are, *apa*, water; *pane*, bread; *lemnu*, wood; *albu*, white; *negru*, black; and so on. The conjugations also of the verbs, which are four in number, correspond exactly to the four conjugations in Latin. For a long time Greek was the language spoken by the court and the upper classes; but about forty years ago this language began to be superseded by the French, which is now spoken by the wealthier classes with great fluency.

Within the last twenty or thirty years great changes have taken place in the condition of the people. Till 1864 the peasants were compelled to work gratis for the proprietor a certain number of days every year, and thus were fixed to that part of the country in which they were born. By a law promulgated in that year, however, not only were they made perfectly free, but each head of a family received a small portion of land, of which he became absolute proprietor. Their dwellings are of the most miserable description. Many of the towns are merely agglomerations of large houses, the residences of the boyards or landed

gentry, surrounded by the huts of his dependents. The streets are ill-paved, or, as is most generally the case, not paved at all, and are disgustingly filthy; the roads, of which there are too few, are in most cases in such a disgraceful condition that vehicles are often brought to a dead halt. There is no native middle class, and the higher ranks of society have only the law open to them as a profession. The commerce of the country is in the hands of Jews and a few foreigners. The Non-Roumanians form about one-seventh of the whole population, and of these the Jews, who are held in the greatest aversion, form the largest proportion. Next in number are the gypsies, formerly slaves either of the state, the convents,

Walachian Peasants.

or private individuals, but now free, and in process of being rapidly assimilated to the Roumanian population, whose language and religion they share. Slavs, Germans, and Magyars are the most numerous of the remaining Non-Roumanians.

At the head of the government of Roumania is a monarch, who bore the title of prince till March 26, 1881, when the title was formally changed to that of king. The charter of 1866 vests the legislative power in a parliament of two houses—a senate, consisting of 76 members, and a chamber of deputies, consisting of 157 members, of whom 82 are for Walachia and 75 for Moldavia. The members of both chambers are chosen by indirect election, the first voters choosing electors, and these in their turn the deputies. All citizens who have reached their twenty-fifth year, and can read and write, have a right to vote; and all who have reached the age of thirty, and have a small annual income, are eligible as deputies.

The Danube below Isakcha is in certain respects under the control of a com-

mission constituted by the Treaty of Paris in 1856, and confirmed by the Treaty of Berlin in 1878. The commission, in which the seven contracting powers of these treaties and Roumania are represented, maintains the police on this part of the Danube, levies imposts, contracts loans, and disposes of the resources derived therefrom in improving and facilitating the navigation of the mouths of the Danube. Already it has made the Sulina arm of the Danube navigable for large vessels. The seat of the commission is Galatz.

The revenue of the principality is mainly derived from a poll-tax; and among the other chief sources of revenue are some other direct taxes, state property, and the tobacco monopoly. The military forces of Roumania are divided into the permanent and territorial army (each with a reserve), the militia, the civic guard in the towns, and the levy *en masse* in the country districts. Military service is obligatory, and it is determined by lot whether a man shall serve in the permanent or the territorial army.

The capital of Roumania is Bucharest (178,000), formerly the capital of the Principality of Walachia, and the most populous town in south-eastern Europe after Constantinople and Pesth. At a distance it has a very picturesque appearance in consequence of its numerous towers and domes rising up from the midst of umbrageous foliage; and its internal aspect, formerly highly disagreeable, has greatly improved of late years, the town being now provided with wide streets, fine houses and other buildings, and large and well-kept parks. Jassy (about 90,000), the capital of the former principality of Moldavia, is situated in the north of Roumania near the Pruth on the small river Bahlui. Its population is very mixed, and has much of an oriental character. The port of Galatz on the Danube has a population estimated at 80,000. See the historical sketch of TURKEY.

SERVIA.

Servia (in Servian, *Srbija*, in Turkish, *Sirp*) is an independent principality, bounded north by Hungary, from which it is separated by the Save and the Danube; east by Roumania (from which it is separated by the Danube) and Bulgaria; south by Turkey; and west by Bosnia, from which it is separated on the greater part of this frontier by the Drin. The area is 18,781 square miles, and the population, according to the census of 1874, but including the territory added in 1878, 1,576,622.

The surface has a general slope towards the north, but is on the whole very mountainous, being traversed by ramifications of three great mountain-chains—those of the Carpathians in the north-east, of the Balkan in the south-east, and of the Dinaric Alps in the west. The summits are often below 2000 feet, and seldom exceed 3000 feet. The climate is somewhat rigorous in the more mountainous parts, but very mild in the valleys and plains, especially those open to the south and sheltered by hills in the north. Vegetation is vigorous, both in the mountainous districts and in the lower grounds, the former being generally

covered with forests of excellent timber-trees, among which, where the elevation is not very great, the walnut is conspicuous, and the latter being generally covered with a fertile soil, well adapted for the ordinary and several of the finer fruits and cereals. The principal agricultural products are maize, wheat (both of which are exported), hemp, and tobacco. Wine is grown in the districts adjoining Hungary, and cotton in the warmest parts. Pasturage is neglected. The minerals include argentiferous copper, lead, iron, and a little gold. Manufacturing industries can scarcely be said to exist, although in quite recent times government has done much to encourage them. Trade, which has the assistance of great

A Servian Church Festival.

navigable rivers, ought to be extensive, but is still in a backward state. It is chiefly carried on with Austria. As yet the most important articles of export are oak timber and hogs, which grow up in vast numbers, almost without care or expense, on the mast of the forests. There are as yet no railways and but few roads. The telegraph has, however, been introduced. There is no separate monetary system in Servia, the coins chiefly current being Austrian, Russian, and Turkish, the rate of exchange for which is fixed by a legal tariff. The metric system of weights and measures is now being introduced. The great majority of the inhabitants are Slavonians, and adhere to the Greek Church, but in the districts annexed in 1878 about a third of the inhabitants are said to be Mohammedans. The density of the population is about 84 to the square mile. The present constitution of Servia dates from 1869. The government is an hereditary monarchy, in which the prince is at the head of the executive, and is assisted by a number of ministers, who are responsible to the nation. The legislative authority is vested in two independent bodies, the senate and the *skupshtina*, or

national assembly. The former is composed of seventeen members nominated by the prince, and is always in session. The latter is elected by the people at the rate of one deputy for every two thousand electors. All males paying direct taxes, and not being domestic servants or gypsies, have the right to vote. The principal source of revenue in Servia is a graduated capitation tax levied in the first instance on the communes or parishes. A foreign debt was contracted for the first time in 1877. According to law every Servian is liable for military service from his twentieth to his fiftieth year. The military forces are divided into the standing army and the national army, the latter divided into two classes (bans), the first of which is organized along with the standing army in time of war. The capital of Servia is Belgrade (27,000), on the Danube, immediately below the point where it receives the Śave. It possesses a citadel, and was at one time strongly fortified; and being the key of Hungary was long an object of fierce contention between the Austrians and Turks. It was first taken by the Turks in 1521, and remained in their possession till 1688. From 1688 to 1690 it was in the hands of the Austrians, from 1690 to 1717 again in those of the Turks, from 1717 to 1739 again in Austrian possession, as it was once more between 1789 and 1791. The skupshtina meets at the small town of Kragujevatz, on an affluent which the Morava receives on its left bank. For the history of Servia see the historical sketch of TURKEY.

MONTENEGRO.

Montenegro is the name given by the Italians to a principality in the north-west of Turkey between Bosnia and Albania, called by the natives *Chernagora* (*Zrnagora*), and by the Turks *Kara-Dagh*, all the different names having the same meaning, namely, Black Mountain. The Italian name has been adopted by the rest of Europe. Till the Treaty of Berlin in 1878 the principality had no seaboard, but by that treaty a small strip along the Adriatic was given to the principality, the territory of which was enlarged also in other directions. Strong pressure has, however, had to be used towards Turkey by the European powers in order to induce her to consent to the cession of the whole territory demanded for Montenegro. The total area of the principality is now about 3700 square miles; the estimated population, 286,000, or about 77 to the square mile.

The general aspect of the country is that of a succession of elevated naked ridges, diversified here and there by lofty mountain peaks, some of them attaining elevations of 5000 feet or 6000 feet, or even higher on the borders of the country. In some parts it looks "like a sea of immense waves turned into stone." The whole territory, indeed, is wild and rugged in the extreme, but has also, especially round the Lake of Scutari, a few beautiful but small valleys, in which the soil is tolerably fertile. The climate is healthy, in the mountains severe, but in the neighbourhood of the Lake of Scutari delightful, and warm enough to allow olives and figs, wine, tobacco, pomegranates, and oranges to thrive. Forests of valuable timber in some places cover the mountain sides. The chief occupations

of the inhabitants are agriculture (including the rearing of live stock) and fishing; the latter carried on principally in the Lake of Scutari, about half of which was assigned to the principality by the Treaty of Berlin. Agriculture is in a very rude and inefficient state, though every cultivable piece of land, even if only a few feet square, is planted with Indian corn, potatoes, or some other useful plant. Sheep, goats, and pigs are reared in great numbers; the two former affording a profitable supply of wool and cheese for exportation. The fish principally caught is carp, which is dried and salted for export to Vienna and Trieste. The Montenegrins belong to the Servian branch of the Slavonic family of peoples. They are generally of tall stature and well proportioned, with singularly powerful voices,

View in Montenegro.

which enables them to carry on conversations at incredible distances. Both men and women are very robust: the latter are often beautiful when young, but soon lose their good looks by laborious and unfeminine occupations, the women being, in fact, the beasts of burden of Montenegro. The people generally are cheerful in manner, extremely brave, pure in their morals, and hospitable and courteous to all except the Turks, whom they hate with an excessive and enduring hatred. The men go at all times fully armed, whatever be the occupation in which they are engaged. The Montenegrin mode of living is hardy and primitive, and their food simple, consisting chiefly of coarse unleavened bread made of Indian corn, cheese, milk, and vegetables. Meat and fish they seldom taste. The products of their own land seldom suffice to meet even their limited wants, and in times of peace from 2000 to 3000 Montenegrins proceed to Constantinople, Asia Minor, and Egypt to seek for employment. The houses are of stone, generally with

thatched roofs; but many are covered partly or entirely with wooden shingles. There are no towns in Montenegro, but there are some 300 villages, one of which, Cettinye, situated at the height of 3600 feet above sea-level, is the capital. The language of the Montenegrins is a remarkably pure dialect of Servian. In religion the people are all of the Greek Church. Education is not much thought of, though that of boys is beginning to receive some little attention, and there has even been established (with Russian assistance) a higher class school for girls. Since 1870 a newspaper has been published at Cettinye, and in the spring of 1879 the first bookseller's shop was opened, and the first reading society established. Montenègro, until 1851, was governed by a Vladika or prince, who was at once a bishop, a judge, a legislator, and a commander-in-chief. In 1851 the civil and ecclesiastical offices were disjoined, the Vladika confining himself to the latter, while the former devolved on the Hospodar. By an administrative statute proclaimed March 21, 1879, the legislative authority is vested in a state council of eight members, four nominated by the prince, and the remaining four by the inhabitants who are bearing or have borne arms in the service of the state. The inhabitants are divided into tribes, each governed by a chief called *knjas* and elected elders. The independence of the principality was first formally recognized by Turkey and the great powers of Europe in the Treaty of Berlin. See the historical sketch of TURKEY.

GREECE.

Greece (in Greek, *Hellas*) is a kingdom in the south-east of Europe, comprising the whole of the mainland of ancient Greece to the south of Mount Othrys, and an irregular line continued from that range to the Gulf of Arta (Ambracian Gulf) on the west, together with numerous islands chiefly on the east and south-east. By far the largest of the islands is Eubœa or Negropont, only separated from the mainland of Livadia by the narrow channel of Euripo. The other islands form four principal groups:—The North Sporades, on the north-east of Eubœa; the Western Sporades, chiefly in the Gulf of Egina, or between it and the Gulf of Nauplia; and the Cyclades and the Ionian Islands. A new northern boundary was fixed for the mainland of Greece by a conference of the great powers of Europe assembled at Berlin, in July, 1880. If this boundary had actually been granted by Turkey Greece would have gained thereby about 15,000 square miles of territory, but, Turkey refusing to make the cession of territory awarded by this conference, a new boundary was agreed on by a convention between Turkey and Greece as stated at the beginning of the article on TURKEY.

POLITICAL DIVISIONS.—Greece is divided into thirteen nomarchies, which are again subdivided into eparchies, and these again into demes. The following

table gives the names of the nomarchies, with the area of each of them, and the population according to the census of 1879:—

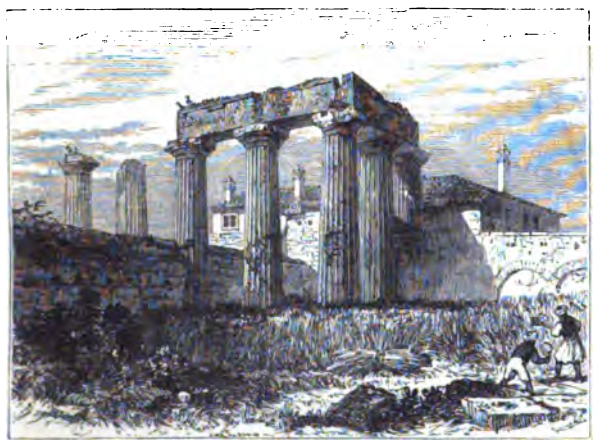
	Nomarchies.	Area.	Population, 1879.
Livadia or Northern Greece.	1. Attica and Bœotia, ...	2,478	185,364
	2. Phthiotis and Phocis, ...	2,053	128,440
	3. Acarnania and Ætolia, ...	3,027	138,444
	4. Eubœa (including the northern Sporades),	1,574	95,136
Peloponnesus, Morea, or Southern Greece.	5. Achaia and Elis, ...	1,908	181,632
	6. Arcadia, ...	2,028	148,905
	7. Laconia, ...	1,678	121,116
	8. Messenia, ...	1,226	155,760
	9. Argolis and Corinthia, ...	1,448	136,081
	10. Cyclades, ...	926	132,020
Ionian Islands.	11. Kerkyra or Corfu (including Paxos and Santa Maura or Leucas),	427	106,109
	12. Cephalonia or Kephallenia (including Ithaki), ...	302	80,543
	13. Zakynthos (Zante), ...	278	44,522
	Army and Navy, ...	...	20,523
	Sailors abroad, ...	...	5,180
	Total, ...	19,353	1,679,775

PHYSICAL FEATURES.—The coast-line of Greece is longer in proportion to its surface than that of any other European country except our own, the whole

The Bay of Navarino, south-west coast of Messenia.

length being about 1150 miles or more than 1 mile of coast for every 17 square miles of surface. On the west side the shores consist for the most part of steep cliffs, but on the east side they are less forbidding; and as this is the side also which contains the most numerous indentations and the best harbours, it is in

several respects the most favourable to shipping. As regards its surface Greece is pre-eminently a mountainous country. Without plains and without large valleys its surface consists of a confused net-work of mountains varying from 3000 to 7000 feet in height. On the north it is separated from Thessaly by a range anciently called Othrys, but now having no general name, and from Albania by several ranges of mountains not forming a chain. To the south of Othrys is Mount Œta, and from the western extremity of this range another range of mountains branches off to the south. This is the celebrated Parnassus, which at its highest point exceeds 8000 feet. The peaks of Cithæron, Parnes, Pentelicus, and Hymettus lie in the same direction, but are more distinguished for their classic celebrity than for their height. The range in which these peaks are found is continued to the south-east point of continental Greece, and the islands of Zea, Thermia, Serpho, and Siphanto may be regarded as continuations of it. This range on the south, and that of Œta on the north inclose the basin of the Mavronero (the ancient Cephissus) with Lake Topolias (Copaïs), a lake whose superfluous waters escape by subterranean outlets (*katabothra*).



Remains of Ancient Temple in Corinth.

The chief feature in the mountain system of the Peloponnesus is a range or series of ranges forming a circle round the valley of Arcadia in the interior, having a number of branches proceeding outward from it in different directions, dividing the rest of the Peloponnesus into several other valleys. The loftiest part of the mountainous circle round Arcadia is that lying to the north, with the peak of Zyria (Cyllene), 7800 feet high, at its eastern extremity, and Olonos (Erymanthus), 7300 feet high, at its western. The southern part consists rather of a series of heights than a chain of mountains. The highest range which branches off from the circle round Arcadia, and, indeed, the highest range in the Peloponnesus, is Mount Pentadaktylon (Taygetus), which strikes southwards, separating the ancient divisions of Messenia and Laconia, and terminating in Cape Matapan. The other chains are of no importance. Of the plains of the Peloponnesus none is more celebrated than the small plain of Olympia in Elis, where in ancient times the Olympic Games were held every fourth year, and where excavations begun by the German government in 1875 have brought to light interesting ruins of ancient buildings, fragments of sculpture, bronzes, inscriptions, and other valuable remains of antiquity.

GEOLOGY AND MINERALS.—The rock most largely developed in the mountains of Greece is limestone, which often assumes the form of the finest marble. Tertiary formations prevail in the north-east of the Peloponnesus; and in the north-west, along the shores of Elis, are considerable tracts of alluvium. Volcanic rocks are not seen on the mainland, but form considerable masses in some of the islands. From the most ancient period a fine kind of statuary marble has been worked on the island of Paros. The working of the argentiferous lead-mines of Laurion in Attica, an important source of wealth to the ancient Athenians, was resumed in 1871.

CLIMATE.—The climate is generally mild, in the parts exposed to the sea equable and genial, but in the mountainous regions of the interior sometimes very cold. During the summer rain scarcely ever falls, and the channels of almost all the minor streams become dry. The air is then remarkably clear, and a month will sometimes pass away without a cloud being seen. A sudden change, however, takes place towards the end of harvest. Rain becomes frequent and copious, and the streams which had been dried up not only fill their channels, but frequently overflow them and lay considerable tracts under water. In this way stagnant pools and marshes are occasionally formed; and as the heat increases, the vapours arising from them become almost pestilential, and intermittent fevers prevail. By ancient Greek writers, as by Herodotus, Hippocrates, and Aristotle, the climate of Greece is highly commended, and on this account it seems fair to infer that the malaria which now infests the air in summer did not then prevail to the same extent, a circumstance that is easily explained by the fact that in those times the country was more thickly populated and better cultivated.

VEGETATION, AGRICULTURE, &c.—The cultivated land in Greece is estimated at only one-fourth of the cultivable area, and of the land under cultivation nearly a half, according to the backward system of agriculture still pursued in Greece, where the plough in use differs in no respect from that which Hesiod described 3000 years ago, is always fallow. The improvement that has taken place of late years is nevertheless stated to be considerable. The produce of the arable land is said to have increased 50 per cent since 1863, and 500,000 acres are said to have been brought under cultivation within the same period. The principal crops are wheat, barley, and maize. The cultivated land produces all the fruits of the latitude—figs, almonds, dates, oranges, citrons, melons, &c.—in abundance and of excellent quality, without receiving any great share of attention. The vine also grows vigorously, yielding annually more than 15,000,000 gallons of wine. But a much more important product of Greece, especially on the coasts of the Peloponnesus, and in the islands of Cephalonia, Zante, Ithaca, and Santa Maura, is the Corinthian grape or currant, the export of which is rapidly increasing in value. Another important object of cultivation is the olive, for which both the soil and the climate are alike favourable. The culture of the mulberry, for the rearing of silkworms, has recently been greatly extended, and already promises important results. The forests of Greece are extensive, and contain among other trees a peculiar kind of oak (*Quercus Ægilops*), which yields the

valonia of commerce. In spite of this, owing to defective management, the forests do not add much to the wealth of the country. The domestic animals are neither numerous nor of good breeds. The only exceptions are in some parts of northern Greece and in Arcadia, where a kind of Barbary sheep, and also merinoes, are frequently kept, and yield a wool which is much admired both for its length and its fineness. In the same districts goats of a superior description are kept, and having long fine hair, are regularly shorn.

MANUFACTURES, &c.—The manufactures are extremely limited, but with all other branches of industry in Greece are increasing. While in 1868 there was not a single steam manufactory in the Piræus, there were ten years later more than thirty, and in the whole kingdom there were at the latter date upwards of a hundred. Since 1870 the introduction of cotton-spinning mills has greatly reduced the import of cotton-yarn. Leather manufactures form an important branch of industry on the island of Syra and in some other parts. But unquestionably the most important branch of manufacturing industry is ship-building, which is carried on to a considerable extent on various points of the coast on the mainland (especially at the Piræus) and on several of the islands.

COMMERCE AND COMMUNICATIONS.—Much of the trade carried on by the Greeks, who are still, as they were in ancient times, essentially a maritime and commercial people, is merely coasting; but the foreign trade also is of considerable extent, having advanced with wonderful rapidity since the independence of the country was established. A large part of the foreign shipping of Greece is that which deals with the import of the cotton and woollen manufactures of Great Britain and Germany into Greece, Turkey, and Persia. In regard to this branch the peculiar advantages which the Greeks possess in their knowledge of the language and acquaintance with the habits and wants of the people of these countries have given them almost a complete monopoly. Even the British, who have long tried to compete with them, have begun to find it hopeless. The total tonnage of Greek vessels above 60 tons burden is equal to nearly a third of that of the same size of vessels belonging to France. The chief ports of Greece are Corfu, New Syra, Piræus (the port of Athens), and Patras. The principal exports of Greece are currants and olive oil; but valonia, emerystone, silk, dried figs, raisins, honey, wax, madder, and other articles are also exported; the principal imports are cereals, and cotton, woollen, and silk goods. The greatest hindrance to the development of Greece at the present time is the want of good roads, which are peculiarly necessary in so mountainous a country. Attention has now begun to be directed to the supplying of this want, but hitherto the public works which have mainly engaged the energies of the Greeks are the construction and restoration of harbours, the erection of lighthouses, the execution of drainage works, and the rebuilding of towns and villages. The only railway as yet opened in Greece is that between Athens and the Piræus, about 7 miles in length. The number of private letters annually carried by the Greek post-office is equal to less than two per head of the population, the number of telegrams equal to about one for every five persons.

MONEY, WEIGHTS, AND MEASURES.—In 1876 Greece entered the mone-

tary league of which the other members are France, Italy, Switzerland, Belgium, and Servia, and all the members of which have a monetary unit equal to the franc in value. The name of the Greek unit is the *drachme*, divided into 100 *lepta*. The French metric system of weights and measures had been introduced (under native Greek names) forty years previously, but the people still adhere to the old system. In the latter the standard lineal measure was the *pike*, equal to 27 inches; the standard square measure was the *stremma*, nearly equal to ¼ of an English acre; the standard weight was the *oke* = 2·8 lbs. avoirdupois: 44 okes were equal to 1 *cantar*, or about 124 lbs. avoirdupois.

RELIGION AND EDUCATION.—The Greek Church alone is established, but all other forms of religion enjoy toleration. The highest ecclesiastical authority, subject to the king, is vested in a permanent synod, which sits at Athens, and consists of five members appointed by the king from the highest dignitaries of the church. There is one metropolitan, who has his seat at Athens, fifteen archbishops, and sixteen bishops, who are presented and ordained by the synod, and confirmed and invested by the king.

The educational system of Greece, organized in 1834 by George Gennadios, one of the leaders of the war of independence, is among the best in the world. There are three grades of schools, the demotic or primary national schools; the Hellenic or secondary grammar schools; and the gymnasia, in which, it is asserted, the range and the level of the teaching are much the same as in a German gymnasium or in the upper classes of our public schools. In all three grades of schools education is gratuitous, and in the primary schools it is compulsory on all children between five and twelve. There are in addition two universities, at Athens (founded in 1834, opened in 1836) and Corfu (founded by Lord Gifford in 1819, opened in 1824), the former attended by between 1200 and 1300 students, rather more than half of whom are said to come from districts under the rule of the sultan. Thus far education seems to be actually diffused among the people only to a limited extent, but all observers seem to be agreed as to the eagerness with which the opportunities afforded for education are taken advantage of for the young. Indeed, one of the most embarrassing circumstances in the social condition of Greece at the present time is the large number of young men of good education, who, having passed through the university course at Athens, find themselves without any proper sphere of employment, and are obliged to adopt the career of journalist, politician, and place-hunter. Many of these are now, however, said to be finding better ways of turning their education to account through the rapid development of trade and industry.

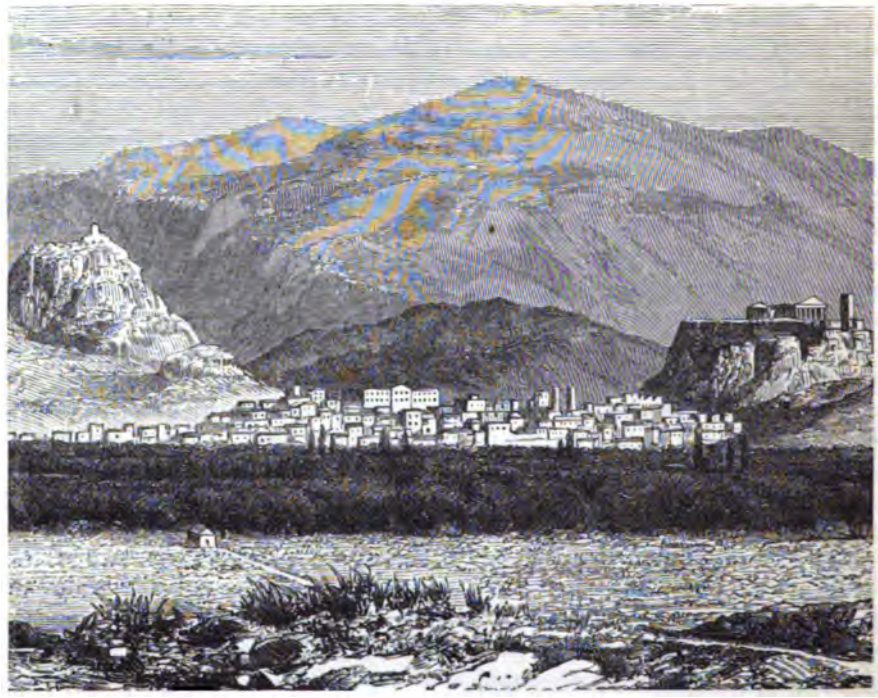
PEOPLE, &c.—The population contains a considerable intermixture of foreign stocks, among which the Albanese, or Arnauts, are the most numerous; but the great majority, though not without some taint in their blood, are of genuine Greek extraction, and both in physical and mental features bear a marked resemblance to their celebrated forefathers. It is true that the degrading bondage to which they were subjected for centuries has sunk them far below their natural level, and too often substituted sycophancy and low cunning for the intellectual superiority which, in earlier and better times, displayed itself in

immortal productions of the chisel and the pen; but that the original elements of greatness still exist has been proved by the noble struggles which they have made for independence. The density of the population at the census of 1879 was equal to about 86 to the square mile, which shows a rapid increase of population since 1870, when the average density was about 75 to the square mile. This increase is not confined to any part of the kingdom, but is found to have taken place to a greater or less extent in every province except the island of Zante. The most densely populated of the nomarchies of Greece is Cephalonia, which has a population of 266 to the square mile; and those of Corfu, Zante, and the Cyclades have also a denser population than any nomarchy on the mainland, where the densest population is found in Messenia (127 to the square mile).

The language of modern Greece, as spoken by the uneducated classes, is called Romaic, from the fact that those who speak it considered themselves before the descent of the Turks upon Europe as belonging to the Roman Empire, and hence called themselves *Romaioi*, or Romans. The Greek of the educated classes, that used in the newspapers and other literature of the present day, is distinguished from it by a greater resemblance to the Greek of antiquity, which renders it easy for any one who has a satisfactory acquaintance with ancient Greek to read the literary Greek of the present day. The domain of the Romaic comprises not only the whole of the present Kingdom of Greece, but also Thessaly and a part of Rumili, Albania, and Anatolia, and the islands of Crete and Cyprus, as well as the islands of the Archipelago not belonging to Greece. The purest Romaic is spoken in the less frequented isles of the Archipelago, and in some of the mountainous districts of the interior. In the northern provinces it is mixed chiefly with Albanian. Besides the foreign words which have been introduced into northern Greek, a pretty large number of words are found which have changed their original signification although they have retained their original form. Ancient words are most commonly found in significations the most remote from the original or derivative sense. The grammar has also undergone considerable modifications. The ancient orthography of the language is still preserved, but considerable changes appear to have taken place in the pronunciation. The vowels η, ι, and υ, and the diphthongs $\epsilon\iota$, $o\iota$, and $\upsilon\iota$, are all pronounced like *ea* in the English word *mean*. B is now pronounced as *v*, and the sound of *b* is expressed by $\mu\pi$. Δ is pronounced like *th* in *thus*, and θ like *th* in *think*.

GOVERNMENT AND DEFENCE, &c.—As first drawn up by the allied powers in 1830 the Greek monarchy was nearly absolute; but in 1844, and again in 1864, important modifications were made. According to the present constitution the throne is hereditary according to the law of primogeniture. The king must be a member of the Greek Church. He attains his majority at the age of eighteen. The legislative authority is vested in a single chamber, called the *Boule*, the members of which (proportioned in number to the amount of the population) are elected for four years by ballot by manhood suffrage. It meets every year on the 1st of November, unless called at an earlier date for special

business. The executive power is exercised by the king through a responsible ministry. Justice is administered on the basis of the French civil code. The supreme court (*Areios Pagos*) has its seat at Athens. The finances of Greece are unfortunately in an unsatisfactory condition. The public revenue, derived chiefly from the rent of national property, the produce of forests, indirect and direct taxation, has seldom, since the establishment of the kingdom, been sufficient to meet the expenditure. The chief cause of this state of matters is said



Athens and Mount Hymettus, from Mount St. Elias.

to be the excessive number of government officials, who form one-twelfth of the whole population.

According to a law passed in 1879 all able-bodied males in Greece above twenty-one are liable for military service, and substitution is not allowed. The term of active service in the regular army is fixed at three years, in the reserves at six, and in the militia ten. The navy is manned by conscription from the inhabitants of the sea-coast, but voluntary enlistment is greatly encouraged by the government.

CHIEF TOWNS.—Greece does not possess a single town with more than 50,000 inhabitants. The capital of the kingdom and the largest town in it is Athens (in modern Greek, *Athinai;* in ancient Greek, *Athenai*), with a population of about 48,000. It is situated on the central plain of Attica, about four miles

from the Saronic Gulf between the Acropolis and Mount Lykabettos. The chief glories of this city all belong to antiquity. Its most glorious period was in the fifth century B.C., when, as an independent republic, it was the acknowledged leader of the Greek states, when Pericles stood at the head of its government, when the Parthenon and others of its principal buildings were erected, and when its principal sculptors, dramatists, poets, and philosophers flourished. Even then, however, Athens is believed not to have had a population exceeding 200,000 at the most. As regards the mere external aspect of the city, Athens was at no time so splendid as under the Antonines in the second century A.D., when the magnificent works of from eight to ten centuries stood in view, and the edifices of Pericles were in equal preservation with the new buildings. Of the monuments of antiquity that have come down to our own time the most important is the ruins of the Parthenon, one of the masterpieces of Greek art with which in ancient times the Acropolis was covered. Originally a temple of Athēna Parthenos (the Virgin), it became in Christian times a church dedicated to the Virgin Mary, and under the Turks a mosque. Till 1687 it remained almost entire, but in that year was greatly damaged by an explosion of gunpowder at the siege of Athens by the Venetians under Morosini. The foundation of Athens takes us back to the legendary period of Greek history. After being an independent state till the fourth century B.C. it fell first under the power of Macedon, then under that of Rome. Till 1204 it belonged to the Byzantine Empire; but after Constantinople had been taken in that year by the Crusaders, who founded the short-lived dominion known as the Latin kingdom of the East, Athens was made the seat of a separate principality (afterwards a duchy), which subsisted under various dynasties and under the suzerainty of different foreign powers till the fifteenth century. In 1456 the city was taken by the Turks, and remained for the most part in their hands till Greece gained her independence. The other chief towns of Greece are Syra or Hermopolis (about 25,000), on the island of Syra, the principal port in the kingdom after the Piræus, the port of Athens; Patras (26,000), or the Gulf of Corinth, the principal port of the Morea; Zante and Corfu, each with about 20,000 inhabitants.

HISTORICAL SKETCH.—See under TURKEY.

BRITISH DEPENDENCIES IN THE MEDITERRANEAN.

GIBRALTAR is a town and strongly fortified rock in Spain, to the south of Andalusia, belonging to Great Britain. This remarkable fortress, which forms the key to the Mediterranean, standing on a peninsula at its entrance, is connected with the continent of Spain by a low sandy isthmus, 1½ mile long and ¾ mile broad, having the Bay of Gibraltar on the west, and the open sea of the Mediterranean on the east. Near the point of junction of this isthmus with the mainland are the Spanish lines, between which and the rock is a space called the "Neutral

Ground." The highest point of the rock is about 1400 feet above sea-level; its north face is almost perpendicular, while its east side is full of tremendous precipices. On its south side it is almost inaccessible, making approach from seaward impossible; the west side, again, although nearly as rugged and precipitous as the others, slopes towards the sea. Vast sums of money and an immense amount of labour have been spent in fortifying this celebrated stronghold. Numerous caverns and galleries, extending 2 to 3 miles in length, and of sufficient width for carriages, have been cut in the solid rock, forming safe and sheltered communications from one part of the garrison to another without being exposed to the fire of an enemy in cases of attack. Along these galleries, at intervals of every 12 yards, are portholes bearing upon the neutral ground and bay; while

Gibraltar, from the Neutral Ground.

trees, shrubs, and flowers of various kinds have been planted at different points, both for ornament and utility. The body of the rock consists of a kind of primary marble, running in strata of 30, 40, and 50 feet in thickness. There is a number of remarkable caves in various parts of the rock, some of them beautifully picturesque, but all difficult of access. The most singular of these natural excavations is St. Michael's, on the south-west side, the entrance to which is 1000 feet above sea-level. The natural animal productions of Gibraltar are wild rabbits, woodcocks, teal, partridges, snakes, and the Barbary ape. The climate is temperate during the greater part of the year, and even in the summer months the excessive heat is allayed by a refreshing sea-breeze that sets in during the forenoon and continues till sunset. The area of this possession is about two square miles, the population in 1871, without the garrison, 18,695, with the garrison, 25,216; in 1878, without the garrison, 18,014.

The name of Gibraltar is a corruption of the Arabic words *gebel el Tarik* (height of Tarik), so called after the Arab general who headed the irruption of the Moors into Spain and, landing here in 711, founded a fortress on the rock.

This fortress was not finally taken from the Moors by the Spaniards till 1462. On the 4th of August, 1704, during the war of the Spanish succession, it was taken by the British under Admiral Rooke, and was left in our hands at the Peace of Utrecht in 1713. In the war which broke out between Britain and Spain in 1779 the last attempt was made for the recovery of Gibraltar. It was besieged from 1779 till 1783, but successfully defended by General Elliot, afterwards Lord Heathfield.

MALTA is the name commonly given to a British dependency which includes, besides the island of Malta proper, the smaller islands of Gozo and Cumino immediately adjacent. The group lies about 60 miles south-south-west of Sicily, and about 200 north of Africa. The area of the island of Malta is 98 square miles; of Gozo, 40; of the whole group, 143; population of the dependency in 1871, 149,084 (including the military); in 1878, 152,553 (excluding the military).

The south-west coast of the island of Malta is remarkably bold, and having not a single opening in which a vessel can take refuge, is considered dangerous; on the north coast the shore is more level. The elevation, however, is not great. The culminating point, which occurs near the south-west coast, does not exceed 1200 feet. The rocks are disposed in four distinct groups, the uppermost being coral limestone, the next yellow sandstone and blue clay, the third sandstone, and the last a yellowish-white semi-crystalline limestone of great thickness, and from its hardness and durability forming an excellent building stone. The coast of Gozo is in general rocky and surrounded with shoals. The climate of both islands is on the whole good, and from the middle of October till that of January cannot be surpassed; but in summer the heat becomes extreme, and the bright light reflected from the bare white rocks and houses is very annoying, and often injures the sight. The soil in both islands is very thin, but in Gozo is of great fertility, while on Malta it is unfit for general cultivation. Only a small quantity of corn is raised, the staple product being cotton, for which both soil and climate are well adapted. Both the vine and olive are cultivated, but the produce of both is inferior. The manufactures consist chiefly of cotton goods, cabinet-work made for exportation, chiefly to Greece and the Ionian Islands; and jewelry, including neck-chains and gold filigree-work, for which the Maltese have long been famous. The central position of Malta in the Mediterranean makes it, particularly in war, an important commercial depot, and at all times an invaluable naval station. It has, in consequence, received great attention from the British government, and been provided both with excellent docks and very strong fortifications. The language commonly spoken is Italian, but the native Maltese have a peculiar dialect closely resembling the Arabic. The chief town is Valetta, a seaport and fortress on the north-east coast, with a population estimated at 90,000.

Malta (the ancient *Melita*) appears very early, and makes a considerable figure in history. In 1522 it was granted by Charles V. to the order of St. John of Jerusalem. In 1798 the Grand Master, Hompesch, surrendered it without defence to Napoleon. In 1800 it was taken by the British, and it was left in their possession by the Treaty of Paris in 1814.

CYPRUS, an island lying south of Turkey in Asia, near the mouth of the Bay or Gulf of Iskenderoon. It is the most easterly island in the Mediterranean, and belongs properly to Asia. It is about 148 miles long, and has an area of about 4200 square miles. The population is variously estimated. In 1874 it was estimated by one authority at 144,000, but since that time it is said to have been greatly reduced by emigration consequent on bad harvests.

The south-western part of the island is entirely mountainous, and the culminating points, Santa Croce (Olympus) and Thrados, are 7000 feet high. Another range fringes the northern coast, extending to the north-eastern extremity of the island, and between these mountains there stretches a plain, the Messaria, which is mostly watered by the only stream of importance, the Pedia (ancient *Pedæus*), which flows east, and falls into the sea at Famagosta. Even this stream sometimes dries up in summer. The climate is in general healthy, excepting in some points on the south coast during the heats of summer, much increased by the burning winds from the Arabian and African deserts, which, causing a rapid evaporation, give rise to a dangerous malaria. Temporary blindness is sometimes occasioned by the sun's reflection from the white chalky soil; and to avoid sunstroke, the natives wrap their heads in thick shawls.

Agriculture is in a very backward condition, chiefly in consequence of Turkish misgovernment. The plain of Messaria, at present mostly covered with thistles, if properly irrigated might be converted into the granary of the island; and Sir Samuel Baker, who resided six months on Cyprus in 1879, has pointed out that there is abundant means for doing so, inasmuch as there are exhaustless supplies of water only a few feet below the surface. The soil of Cyprus is divided into three classes: first, *libadia*, which even in summer retains a certain amount of natural moisture, lying chiefly along the lower courses of the streams and some parts of the coast, and producing corn, madder, cotton, vegetables, and garden fruits; second, *potistikon*, or land requiring irrigation, producing mostly cereals and cotton; and third, *trachona*, or dry ground, for the most part untouched by the plough, but well adapted for the cultivation of olives, figs, almonds, and mulberries. Excellent grapes are grown in the island, but the wine made from them, owing to defective processes, is mostly very indifferent. The madder of Cyprus is the best in the Levant after that of Smyrna, and the carobs of the island, which are exported chiefly to the Levant to be eaten by the Russian peasants during Lent, are unsurpassed. The extensive pasture-lands of the island support immense numbers of sheep and goats. The forests with which the mountains of Cyprus were formerly covered have been to a large extent destroyed by wasteful management. The minerals include talc, red jasper, copper (all of which are found in abundance), gold, silver, emeralds, and the Paphian diamond. Besides salt, which is obtained in large quantities from salines at Limassol and Larnaca, the first three are the only minerals wrought. The chief exports of the island are wheat, barley, carobs, linseed, sesamum, alizarine, and sumach, besides coarse silks, hand-printed woollen fabrics, leather, and shoes with wooden soles. The population of the island is said to consist of Greeks and Turks in the proportion of about two to one. The Cyprian ladies, so famous in antiquity, are handsomer, taller, and more

stately than those of any other Grecian island. Their features are regular and dignified, exhibiting that elevated cast of countenance which is so universally admired in the works of Greek artists. The capital of the island is Levkosia or Nicosia, in the centre of the Messaria. It has a population of about 20,000, and is the seat of an archbishop belonging to the Greek Church, and of an Armenian bishop. An order in council dated Sept. 14, 1878, intrusted the administration of Cyprus to a high-commissioner and commander-in-chief, who is assisted by a legislative council, the members of which are nominated by the crown.

The oldest history of this island is lost in the darkness of antiquity. In ancient times it was successively in the possession of the Egyptians, Persians, the Egyptians a second time, and the Romans (from 57 B.C.). In 1182 Isaac Comnenus, a prince of the imperial family of Constantinople, made himself independent, but the island was wrested from him in 1191, during the third Crusade, by Richard I. of England, who afterwards bestowed it upon Guy of Lusignan. In his family it remained till 1489, when it was seized by the Venetians on the ground that the wife of the last ruler of the family of Lusignan was a Venetian lady. The Venetians now enjoyed the undisturbed possession of it till 1571, when it was conquered by the Turks and annexed to the Ottoman Empire. In 1830 it was taken by the Viceroy of Egypt, but was retaken by the Turks in 1840, and was retained by them till June, 1878, when, by the Convention of Constantinople, concluded during the negotiations consequent on the Russo-Turkish war of 1877–78, it was handed over to Great Britain, to be occupied and administered by that country as long as Russia should retain the territories in Asia ceded to her by the Treaty of Berlin. The island is declared to remain a part of the Turkish Empire, and Turkey reserves to herself certain rights. In consequence of a claim made by the house of Savoy to the heirship of the Lusignan family, the King of Italy still bears the title of King of Cyprus.

ASIA.

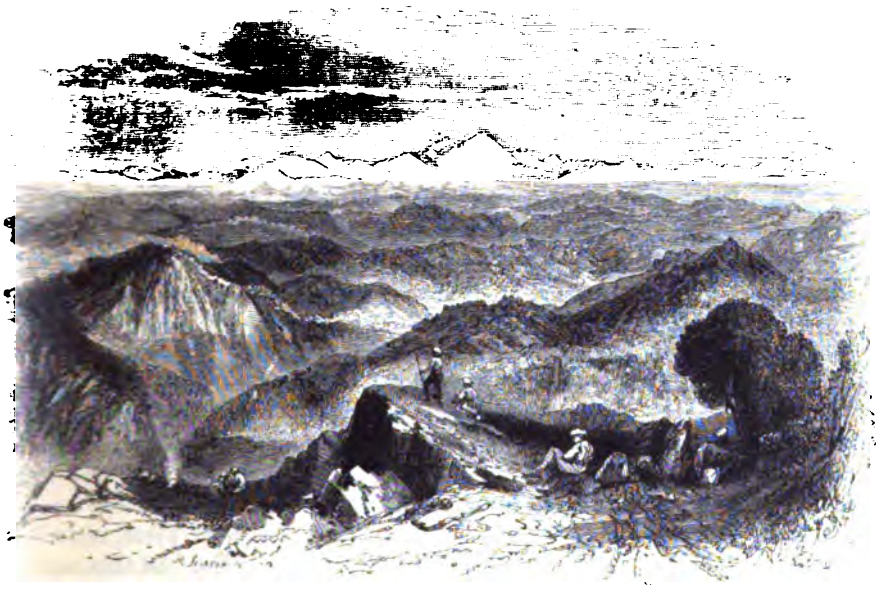
Asia is the largest of the five great divisions of the earth called continents, its area being greater than that of North and South America put together.

BOUNDARIES, DIMENSIONS, &c.—Like Europe, Asia is bounded on every side except one by the sea, and since the construction of the Suez Canal, separating Arabia from Africa, Europe is the only other continent with which it is connected by land. (See EUROPE.) From Cape Baba in Asia Minor, in lon. 26° 20′ E., the extreme westerly point of Asia, to the East Cape on Behring's Strait, in lon. 169° 50′ W., Asia extends through nearly 164 degrees of longitude, and from Cape Chelyuskin, in about lat. 77° 30′ N., to Cape Romania, the southern extremity of the Eastern Peninsula, in 1° 22′ N., it extends through more than seventy-six degrees of latitude; and if the islands on the south be included the number of degrees of latitude through which it extends is nearly eighty-nine. The northern coast is almost entirely within the Arctic Circle. The largest indentation there is the Gulf of Obi, which receives the river Obi near that circle. The length of the continent from the extreme south-western point of Arabia, at the Strait of Bab-el-Mandeb, to the extreme north-eastern, East Cape, or Cape Vostochni, in Behring's Strait, is about 6900 miles; its breadth, from Cape Chelyuskin in Siberia to Cape Romania, about 5300 miles. The area is estimated at 17,149,000 square miles. The total extent of coast is estimated at 35,000 miles, which is only three-fourths greater than the coast-line of Europe, although its area is four and a half times as great as that of the latter continent.

MOUNTAINS.—The mountain systems of Asia are of great extent, and their culminating points are the highest in the world. There are also vast plateaux and elevated valley regions, but large portions of the continent are low and flat. Such are the greater portion of Siberia, from the Ural Mountains across the north of the continent, and the western central region of the continent, where a large area of depression culminates in the Caspian. The greatest mountain-system in Asia, and, in so far at least as altitude is concerned, of the world, is the Himálayan[1] system, the principal mass of which lies between lon. 65° and 110° E. and lat. 28° and 37° N. It thus occupies a position not very far from the centre of the continent, though nearer the southern edge than the northern. It extends, roughly speaking, from north-west to south-east, its total length being about 2000 miles, while its breadth varies from 100 to 500 or 600. Different names have been given to different portions of the system, such as Hindu Kush (the north-western extremity), Karakorum, and Kuen-Lun, while Himálaya (the Snowy Range) is more especially confined to the northern barrier of Hindu-

[1] See note at the beginning of the section on India.

stan; but all these are really portions of the same connected mountain mass. The Kuen-Lun simply forms the northern flank of the mass, and is not, as it has been represented, a distinct chain; while the Karakorum Mountains have so little to distinguish them from the rest of the elevated mass to which they belong that they may be crossed without the traveller being aware of it. The broadest part of the system, the elevated table-land of Tibet, lies between the Himálaya proper and the Kuen-Lun. The Tibetan Mountains are connected on the east with the mountains of China and with those that spread to the south-east over the Indo-Chinese Peninsula. A second great mountain-system of



The Snowy Range (the Himálayas), from Marma.

Central Asia, connected with the Himálayan system by the elevated region of Pamir (say lon. 70°–80° E., lat. 37°–40° N.), is the Thian-Shan system. The point of junction may be said to form "a huge boss or knot," from which the Thian-Shan runs north-westward for a distance of some 1200 miles. Between these two systems, which curve round it on the west, lies Eastern Turkestan, right in the centre of Asia. The greatest elevations of the Himálayan system are to be found among the Himálayas proper, where is Mount Everest, 29,002 feet high, Kanchinjinga, 28,156, &c. The principal passes here, which rise to the height of 18,000 to 20,000 feet, are the highest in the world. The Kuen-Lun summits reach a height of 22,000 feet. The Himálayas descend by successive slopes to the plain of Northern India, which has an elevation of about 1000 feet above the level of the sea. The Vindhyas cross the peninsula, dividing Northern from Southern India; the latter is further bounded by the Eastern and the Western Ghâts, which run along the coasts; while

the interior consists of elevated table-lands rising towards the south, where they attain in the neighbourhood of the Nílagiri Hills an elevation of 7000 feet. The Himálayas are not only connected with the mountains in the interior of India, and with ramifications into China and the Indo-Chinese Peninsula, but on the west with the mountains of Beluchistan and Afghanistan. The Sulaiman and Hala ranges bound India on the west, and unite with the mountains of Beluchistan; while the Hindu Kush, passing westward through the north of Afghanistan, has continuations more or less distinct through Persia to the Elburz range south of the Caspian, and so onwards to Mount Ararat. From this point again it forms connections with the mountains of Armenia, with the Caucasus, with the Taurus range in Asia Minor, and with the mountains which run to the south of Persia. The mountains belonging to this series form the boundaries of an elevated plateau extending from the Mediterranean to the Indus. On the north they are frequently of great elevation, Mount Demavend in the Elburz range reaching the height of 18,460 feet, while Ararat is nearly 17,000. The Thian-Shan system is continued to the north-east by the Altai and Sajansk ranges, the whole separating the Chinese Empire from Russian Turkestan and Siberia. Tengri-Khan in the Thian-Shan Mountains is estimated to have a height of 21,320 feet. A line of moderate elevation extends from the Altai westward to the Ural Mountains. To the east of the Sajansk range the Yablonoi Mountains run north-east towards the coast, along which they are continued northward under the name of Stanovoi to Behring's Strait.

TABLE-LANDS, PLAINS, AND DESERTS.—Tibet forms the most elevated table-land in Asia, its mean height being estimated at upwards of 14,000 feet. Its surface is very rugged, being intersected by a number of mountain ranges running generally in an easterly and westerly direction. On the east it is bounded by lofty mountains which separate it from China. Some of the largest rivers of Southern and South-eastern Asia have their origin in Tibet, including the Indus, the Bráhmaputra, the Yang-tse, and the Hoang-Ho. In this region, which is still not well known, important discoveries were made in 1874–75 by the Pundit Nain Sing, who travelled from Yarkand to Lassa, over a route of which at least 1200 miles were unexplored. In particular he discovered a numerous series of lakes running in a chain parallel to the Himálayas. The whole of Central Asia through a length of about 1800 and a breadth of about 500 miles forms one vast plateau, the mean elevation of which is about 10,800 feet. Another great plateau, much lower, however, than either of the two just mentioned, is that already referred to in the previous paragraph as occupying a large portion of Western Asia, extending from the Indus to the Mediterranean, and from the Persian Gulf to the Caspian Sea. It comprises the countries known as Afghanistan, Beluchistan, Persia, Armenia, and Asia Minor. It lies at altitudes varying from 2000 to 8000 feet above the sea. The eastern half of it consists to a large extent of unproductive wastes.

The principal plain of Asia, as already mentioned, is that of Siberia, which extends along the north of the continent and forms a vast alluvial tract sloping to the Arctic Ocean, and traversed by large rivers, such as the Obi, the Yenisei,

and the Lena, which convey its drainage to that ocean. Vast swamps or peat-mosses called *toundras* cover large portions of this region. South-west of Siberia, and stretching eastward from the Caspian to the Thian-Shan Mountains, is a low-lying tract, consisting to a great extent of steppes and deserts, and including in its area the Sea of Aral, Bokhara, Khiva, and other districts. This is a region of internal drainage, the rivers, among which are the Amu Daria and the Sir Daria, either falling into the Sea of Aral or into other smaller sheets of water. In the east of China there is an alluvial plain of some 200,000 square miles in extent, most of it productive and highly cultivated; in Hindustan there are plains extending for 2000 miles along the south slope of the Himálayas; and between Arabia and Persia, watered by the Tigris and Euphrates, is the plain of Mesopotamia or Assyria, one of the richest in the world. Of the deserts of Asia the largest is that of Gobi, which is bounded on the north by the Yablonoi and Thian-Shan Mountains, on the south by Tibet, on the east by the Khingan Mountains on the borders of China; while in the west it extends into Eastern Turkestan. Large portions of it are covered with nothing but sand or display a surface of bare rock. This desert forms a large part of the country known as Mongolia, the whole of which forms an area of internal drainage deficient in rainfall. There are also extensive desert tracts in Persia, Arabia, and Hindustan. An almost continuous desert region may be traced from the African desert through Arabia, Persia, and Beluchistan to the Indus.

RIVERS AND LAKES.—Asia contains some of the largest rivers in the world. It is remarkable among the continents for the number of its rivers, some of them of large size, that never find their way to the ocean, their waters either being lost in the sand or falling into lakes that have no outlet. The chief rivers in Western Asia are the Tigris and Euphrates, which rise in the Armenian plateau and fall into the Persian Gulf; the Indus, from the Tibetan plateau, flows through North-western Hindustan and falls into the Arabian Sea; the Ganges, which rises in the Himálayas and flows eastwards through Northern Hindustan, and the Bráhmaputra, which rises in Tibet and flows through Assam and Bengal, both enter the Bay of Bengal; the Iráwadi and the Salwen, rising in the mountains of the Indo-Chinese Peninsula, and both flowing through Barma, likewise enter the Bay of Bengal; the Mekong or Cambodia, the largest river of this peninsula, has its sources in the same mountains, and flowing south-eastwards enters the South China Sea; the Yang-tse and the Hoang-ho, the two great rivers of China, rise in the Tibetan plateau, and enter the ocean after a winding easterly course; the Amur, the only other great river of Eastern Asia, rises in Mongolia, and after a circuitous course enters the Sea of Okhotsk; the great rivers of Northern Asia, the Lena, Yenisei, and Obi, have already been mentioned. The table on the following page gives the length, including windings, of the principal rivers of Asia along with an estimate of the area of their basins.

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River.	Length.	Area of basin.	River.	Length.	Area of basin.
	miles.	sq. miles.		miles.	sq. miles.
Obi, ...	2075	1,200,000	Ganges, ...	1514	391,000
Yenisei,... ...	2000	1,100,000	Indus, ...	1800	373,000
Lena, ...	2600	770,000	Brâhmaputra, ...	1800	361,000
Yang-tse-kiang,	3300	730,000	Euphrates, ...	1720	255,000
Hoang-ho, ...	2580	700,000	and Tigris, ...	1025	

Europe, its largest tributary being the Volga. The chief Asiatic rivers falling into this sea are the Kur from the Caucasus, the Aras from Armenia, and the Atrek from Northern Persia—the river Ural being partly European partly Asiatic. The Caspian, as already mentioned, occupies the centre of a great depression, being 84 feet below the level of the Black Sea. East from the Caspian is the Sea of Aral, which, like the Caspian, has no outlet, and is fed by the rivers Amu Daria and Sir Daria. Its area is estimated at 27,000 square miles. Still farther east, to the north of the Thian-Shan Mountains, and fed by the Ili and other streams from this system, is Lake Balkhash, with an area of 8400 square miles. The lake has no outlet; its water is clear but very salt and disagreeable. There are also several other smaller lakes in this region, such as Issik-Kul, Kara-Kul, Ala-Kul, Baratala, &c. In the south of Siberia, between lon. 104° and 110° E., is Lake Baikal, the largest fresh-water lake in the Old World. It lies at the height of about 1400 feet above sea-level, and has an area estimated at about 12,500 square miles. In the very centre of the continent is the Lob Lake, or Lob Nor, to which all the drainage of Eastern Turkestan converges, being conveyed to it by the Yarkand, Kashgar, and other streams. These unite to form the Tarim River, which, from the source of the Yarkand, has a total length of over 1200 miles. Lob seems to be rather a swampy tract than a lake proper. On the borders of Afghanistan, Persia, and Beluchistan is a similar swampy lake that receives the Helmund and other streams from Afghanistan. Of the numerous lakes in Tibet Dangra-yum Nor and Tengri Nor seem to be the largest; the former is 45 miles long and 25 broad. In the north-east of the Hindu Kush Mountains lies Lake Sir-i-Kol, the highest lake in the world so far as is yet known, its height above sea-level being 15,600 feet.

GEOLOGY.—Though in population and history the most ancient continent, geologically speaking Asia is considered, as regards its present aspect, to be one of the newest. The principal mountain chains are composed largely of granitic rocks. The Himálayas, in which Humboldt has observed a striking resemblance in geological structure to the Alps, are composed of granite, gneiss, and mica-schist, with cyanite and amphibolites or trap-rocks, particularly primitive green-stone. The Altai Mountains contain granite in layers without alternation of gneiss; argillaceous schist in contact with greenstone, and containing augite, jaspar, calcareous rocks, argentiferous lead ore, and copper. The ramifications of the Altai into Russian Asia contain also coal-grit, schists, quartz, and green-stone, rich with lead, silver, and auriferous sand. The lower ranges are covered with transported layers of rolled stones of granite, gneiss, and porphyry, in which

are found agates, carnelians, and chalcedonies. In the Kuen-Lun group are found rubies, pieces of lapis-lazuli, and turquoises. In the eastern part of the Urals the granite, of which the chain is composed, along with gneiss and other rocks, is extremely rich in iron and copper. The Caucasus contains granite, argillaceous schist, and basaltic porphyry. The great plains of Northern India, Mesopotamia, Central Asia, and Siberia are regarded as of very recent geological origin. From various indications many geologists are of opinion that the greater part of Western Asia was occupied at no very distant period by an ocean, of which the Caspian and Aral Seas are the remains. It is also conjectured that a continental area extending across the Indian Ocean united Asia during the Permian period to Africa and Australia. Siberia is supposed to have been twice submerged during the palæozoic and the later tertiary period. A line of volcanic action extends on the eastern coast from Kamtchatka through the Philippines and the Malay Archipelago to Arakan in the Bay of Bengal.

CLIMATE, SOIL, &c.—The size of Asia, the great altitudes and depressions of the continent, along with the variations of latitude and the disposition of sea and land, &c., all combine to bring about much variety and complexity in the distribution of its climate. In Tibet, with a mean elevation of about 15,000 feet, the climate is rigorous, combining great cold with drought. The climate of Central Asia generally presents extremes of heat and cold, and great deficiency of rain. It has accordingly a deficient vegetation and a scanty nomadic population. The chief characteristics of the vast region of Siberia are greater extremes of heat and cold than in similar latitudes in Europe, and a very moderate rainfall. The vegetation, except that of the forests, is scanty. The northern part of China to the east of Central Asia has a temperate climate with a warm summer, and in the extreme north a severe winter. It is well watered and wooded, possesses a fertile and well-cultivated soil yielding the usual products of temperate regions, and is thickly peopled. The districts lying to the south of the central region, comprising the two Indian peninsulas, Southern China, and the adjacent islands, present the characteristic climate and vegetation of the southern temperate and tropical regions. Here, however, the modifying effects of altitude come most largely into play, and every variety of climate and form of vegetation are to be found on the slopes of the Himálayas, and the mountains and plains of Southern India and of the eastern peninsula. The part of Asia south of the Himálayas, though not all lying within the tropics, is all subject to tropical influences. The high plateau which extends from Asia Minor to the Indus has a temperate climate, with some extremity of heat in summer and cold in winter. Some parts of the coast of Arabia, as Yemen and Oman, are fertile, but the greater part, especially on the Red Sea, is barren and desolate. The Japanese Islands, which are traversed by mountains of considerable elevation, and extend over about 15° of latitude, experience a great variety of climates. In the north the climate is rigorous, in the south as mild as that of the south of France. The east coast is milder than the west, being sheltered by the mountain ranges from the cold winds of the continent. The character and productions of the other islands are mostly tropical.

On the coast of Siberia there is a difference of 100° between the mean of the hottest and coldest month, and in general it is over 60° throughout the country. As the equator is approached the extremes of mean monthly temperature diminish till at the southern extremity of the continent they approach within 5°. The highest temperature attained in Southern Asia is about 112°, the highest mean about 82°. On the Persian plateau the summer heat is increased by the want of rain, and the severity of the winter by the elevation.

VEGETATION.—The plants and animals of Northern Asia generally resemble those of similar latitudes in Europe, though the extremes of climate are greater. The plateau extending from Asia Minor to the Himálayas resembles Southern Europe in its productions, and the desert belt of Asia has an affinity to the African desert. The characteristic types of Siberia are continued to the high regions of Central Asia. The community of type with European forms also extends to North China, where is developed besides a relation with the types of North America. The whole of Northern Asia differs from Europe more in species than in genera of vegetable productions. Oaks and heaths are absent in Siberia. The cultivated plants of Asia Minor and Persia resemble those of Southern Europe. In the central region European species reach as far as the Western and Central Himálayas, but are rare in the Eastern. They are here met by Chinese and Japanese forms. The south-eastern region, including India, the Eastern Peninsula, and China, with the islands, contains a vast variety of indigenous species, varying with the humidity of the climate and the elevation, the forms of higher latitudes being represented on the mountains. In this region we find growing wild a number of plants that have become of the utmost importance to man, such as the sugar-cane, rice, cotton and indigo, pepper, cinnamon, cassia, clove, nutmeg, and cardamoms, banana, cocoa-nut, areca and sago palms; the mango and many other fruits, with plants producing a vast number of drugs, caoutchouc and gutta-percha. The forests of India contain the oak, teak, sal, deodar, and other timber woods, besides bamboos, palms, sandal-wood, laurels, fig-trees, &c. The Malay Peninsula contains dense forests of similar kinds. The cultivated plants of India include wheat, barley, rice, maize, millet, sorghum, tea, indigo, jute, opium, &c. Cotton, indigo, sugar, tea, tobacco, coffee, pepper, plantains, mangoes, &c., are cultivated in China. Of the Chinese flora the larger portion resemble the Indian, while many are local. In North China, the country between it and the Amur (Manchuria), and the Japanese Islands, large numbers of deciduous trees occur, such as oaks, maples, limes, walnuts, poplars and willows, the genera being European but the individual species Asiatic. Among cultivated plants are wheat, and in favourable situations rice, cotton, the vine, &c. Japan and the northern parts of this region are rich in species of the pine tribe. According to elevation the islands of the Asiatic Archipelago display an equal diversity with the mainland, the more tropical types being represented on the lower elevations, the more northern on the higher. Coffee, rice, maize, &c., are extensively grown in some of the islands. A line of demarkation called Wallace's Line has been drawn at the Strait of Macassar, at which the flora and fauna of Australia begin to appear, and gradually become more pronounced as the distance

from Asia and the proximity to Australia increase. The variety of plants of the desert region of Arabia, Persia, and Beluchistan is comparatively small. The predominance of a few species gives character to the whole region. Fleshy plants are characteristic of the most arid portions of this region. In the higher parts of Persia and Afghanistan numerous forms of Umbelliferæ of great size, as well as thistles and the borage tribe, are abundant. African forms are found not only extending from the African desert along the desert region of Asia, but from South Africa to Ceylon. The Caspian lowlands is the tract where the saline vegetation that is spread over the whole region of steppes and deserts has its greatest development. This region is regarded as the native country of the melon.

ZOOLOGY.—There is a still closer resemblance in the fauna than in the flora of Northern Asia to that of Europe. Asia south to the Himálayas, together with Europe and North Africa, forms a continuous region, which Dr. Sclater has designated as the Palæarctic; South-eastern Asia, with Sumatra, Java, Borneo, and the Philippines, he calls the Indian region; Africa south of the Atlas, with Arabia, Palestine, South Persia, the dry part of Beluchistan and Sind, form the Ethiopian region; Celebes and the other islands beyond Wallace's Line, with Australasia, the Australian region. Nearly all the mammals of Europe occur in Northern Asia, with numerous additions to the species. Quadrumana are rare; Carnivora numerous, especially bears, wolves, and weasels. Moles, shrews, and hedgehogs are common among Insectivora. Rodents are represented by marmots and the pika or tailless hare. There are numerous species of wild sheep, antelopes, and deer. Of the last the musk-deer and the stag are characteristic. The ornithology of Europe and Northern Asia are identified to a still greater extent. A large majority of European species extend over Northern Asia as far as Japan. The pheasant proper in the wild state is peculiar to Northern Asia, the golden pheasant and several other species of pheasants to the north-east. The genera and species of passerine birds are very numerous. In the Indian region there are several peculiar genera of the Quadrumana or monkey tribe. Perhaps the chief distinctive form of this region is the elephant, the Asiatic species being distinct from the African. Among carnivorous animals, the lion, the tiger, and leopard, which are considered as Ethiopian forms, as well as the bear, civet, ichneumon, and others, are found. The lion inhabits Arabia, Persia, Asia Minor, Beluchistan, &c. The Indian lion is said to be now extinct. The tiger is the most characteristic of the larger Asiatic Carnivora. It extends from Armenia across the entire continent, being absent, however, from the greater portion of Siberia and from the high table-land of Tibet; it extends also into Sumatra, Java, and Bali. In the Indian region we also find the rhinoceros, buffalo, ox, deer, squirrels, porcupines, as well as various species of Edentata. In birds nearly every order except ostriches is represented. Among the most interesting forms are the hornbills, the peacock, the Impey pheasant, the tragopan, and other gallinaceous birds, the pheasant family being very characteristic of the region. The desert region, extending from Arabia to Sind, is chiefly distinguished by the absence of many Indian forms and the presence of some African ones, which, however, are not widely spread, most of them being limited to Arabia and Syria.

In the Malay Archipelago marsupial animals first occur in the Moluccas and Celebes, while various mammals common in the western part of the archipelago are absent. A similar transition towards the Australian type takes place in the species of birds. Of marine mammals the dugong is peculiar to the Indian Ocean; in the Ganges is found a peculiar species of dolphin. The chief haunts of the Reptilia of Asia are the northern portion of Hindustan, the Eastern Peninsula, China, and the islands of Ceylon, Sumatra, and Java. At the head of the Reptilia stands the Gangetic crocodile, frequenting the Ganges and other large rivers; the helmeted crocodile and the double-crested crocodile are numerous in various quarters, both insular and continental. Among the serpents are the cobra da capello and a species of Trigonocephalus, both among the most deadly snakes in existence; there are also large boas and pythons, besides sea and fresh-water snakes.

ETHNOLOGY AND LANGUAGE.—The attempts to classify the races of mankind on strictly ethnological grounds have led to too little agreement among men of science for us to be able to present to the reader any general conclusions that have been arrived at, and we must therefore content ourselves, as in the notice of Europe, with a classification based on a comparison of languages, on which basis there is at least more agreement than on any other. According to Prof. Sayce's arrangement the languages of Asia may be divided among the following principal families:—Semitic, Aryan or Indo-European, Turanian or Ural-Altaic, Dravidian, Kolarian, Tibeto-Burman, Thai or Tai, Chinese, Corean, Lesghic, Circassian, and Malayo-Polynesian. The Semitic family is confined to south-western Asia, chiefly Arabia and Syria, where Arabic, Samaritan, and Aramaic still survive. The Aryan or Indo-European family is divided into two groups, the Indian and the Iranian, the former comprising nearly all the languages of Northern India, as well as, according to Sayce, the Singhalese or Elu (the language of Ceylon), and the latter the languages of Persia, Kurdistan, Beluchistan, Afghanistan (Pukhtu), and the Ossetians in the Caucasus. To this group also the language of the Armenians in the south-east of the Black Sea is also generally referred. The Turanian family of languages is spoken throughout Siberia and Central Asia and the northern part of the Chinese Empire (as well as in some parts of Europe). It is divided into five groups—the Ural, spoken by the tribes in the north-west; the Samoyede, spoken by the tribes further east, among which the Ostyaks are the most numerous; the Turkish-Tatar group, spoken throughout South-western Siberia and Central Asia from the Caspian to the Desert of Gobi, as well as by the Turks; the Mongol group, spoken chiefly by nomadic tribes in Siberia and the Chinese Empire (the Buriats round Lake Baikal, the Kalmucks in the Altai Mountains, and the eastern Mongols); and the Tungusian group, spoken by hunting tribes spread over an extensive tract in the forests of Eastern Siberia, and also by a number of settled tribes in the Amur district, and in Chinese Manchuria. To this last group the Japanese is believed to be referable. The Dravidian family of languages (including Tamil, Telugu, &c.) is spoken by upwards of thirty millions of people on the southern plateau of India. The Kolarian family is that spoken by a number of Indian

tribes found scattered over the hills of the north and in a more compact group in those of Central India. The Tibeto-Burman family includes various groups spoken in Nepál, Sikkim, Assam, Burma, the region north of the Himálayas, Southern China, &c. The Thai or Tai family is spoken in Siam, Laos, Shan, and other parts of the Eastern Peninsula. The Chinese language and that of the Coreans are each referred to a separate family; and so also are those of the Lesghians and Circassians in the Caucasus. The Malayo-Polynesian family is divided into two groups—the Malayan, spoken in the Philippine Islands, the Moluccas, Java, Sumatra, and other islands to the south-east of Asia as well as on the Malay Peninsula; and the Polynesian, which belongs to the non-Asiatic, islands. The Negrito dialects of the Philippine Islands are referred to the Papuan family, spoken chiefly in New Guinea. In the extreme north of Asia some totally distinct languages are spoken by small tribes thinly scattered over wide areas, the principal being the Yukaghirs (numbering little more than a thousand) and the Chukchis.

As regards their structure, the Aryan and Semitic families of languages besides the Lesghic family spoken in the Caucasus, are the only Asiatic families belonging to the class called inflectional, that is, to the class in which both the roots and the affixes of words are subject to change in order to form derivatives and inflections. The Tibeto-Burman, Thaian, and Chinese languages are all isolating or monosyllabic, that is, they are entirely composed of words of one syllable, which always remain unchanged, and have their function in a sentence determined solely by their position. The remaining families belong to the class called agglutinative, in which the root always remains distinctly recognizable as a separate element of every word, but in which variable inflectional syllables (sometimes prefixed and sometimes postfixed) are added to the root to express various relations and modifications of meaning.

RELIGION.—It is a remarkable fact that all the higher religions of the earth, Judaism, Christianity, Zoroastrianism, Brahmanism, Buddhism, and Mohammedanism, have had their origin in the Asiatic continent. Of these six religions Buddhism now counts the largest number of adherents in Asia, and is indeed professed by a larger population than any other religion in the world. It is now extinct in India, the land of its birth, but is still the religion of all South-eastern and Eastern Asia, including the Eastern Peninsula, China, Ceylon, and is professed in the form of Lamaism in Tibet and among the Mongolian tribes of Central Asia. In the third century B.C. it was prevalent throughout India also, but subsequently gave way before a revival of Brahmanism, as in the Asiatic islands, where it had established itself (Java, &c.), it has given place to Mohammedanism. Brahmanism, in its numerous sects, is now for the second time the prevalent religion of India, but is confined to that peninsula; whereas the religion of Mohammed now prevails in Arabia, Asia Minor, Persia, Turkestan, Afghanistan, Beluchistan, Western India, the Malay Peninsula, the Asiatic islands, and the Chinese province of Yünnan. Scattered remnants of the adherents of the old Persian religion of Zoroastrianism are to be found under the name of Gebers or Párs̀is on the west coast of India. The Jews are distributed over Western Asia,

and are most numerous in Asiatic Turkey and especially in Palestine. Christianity has now but few representatives in the region where it was first preached, but counts a considerable number of adherents in Asia Minor and Asiatic Russia. The majority of Asiatic Christians belong to the Greek Catholic Church, but the Armenian Church has an organization of its own, and there are numerous Christian sects in the mountainous districts of Western Asia, Nestorians in Western Kurdistan, Maronites in Lebanon, Syrian Christians in other parts of Syria. In the south-west of India there exists also a small sect known as the Thomas Christians, because they believe their church to have been founded by the apostle Thomas. In reality they are of Nestorian origin. The labours of missionaries have not yet been successful in gaining over many Asiatics to Christianity, and especially is this true of Protestant missionaries. The Philippine Islands are the only part of Asia where Christianity has gained much ground. The name of Shamanism is given to the religion of the less civilized tribes of Northern and Central Asia, which is much akin to that of the heathen Esquimaux. Like the inua of the Esquimaux the *shaman* is a sort of mediator between men and the superior spirits that preside over different realms of nature or natural objects. The adherents of this form of religion often hold also a belief in charms and witchcraft. The systems of Confucius and Lao-tse (*Taoism*) have many adherents in China; but these are not religions in the proper sense of the term, but merely philosophic schemes or theories of life.

POLITICAL DIVISIONS.—The following table gives the area and population according to the most recent information of the political divisions and island groups of Asia:—

	Area in sq. miles.	Population.		Area in sq. miles.	Population.
Siberia, ...	4,824,570	3,440,362	Himálaya States, ...	9,035	3,300,000
Russian Central Asia,	1,283,496	4,567,344	Ceylon, ...	24,702	2,606,930
Turkoman Territory,	79,733	450,000	Tribes east and south of Assam, ...	25,280	200,000
Khiva, ...	22,317	700,000	Burma, ...	176,500	4,000,000
Bokhara, ...	92,300	2,150,000	Siam, ...	280,650	5,750,000
Transcaucasia, ...	179,527	5,628,000	Anam, ...	170,000	21,000,000
Asiatic Turkey, ...	729,484	16,133,000	French Cochin China,	22,956	1,600,000
Samos, ...	212	37,080	Cambodia, ...	32,380	890,000
Cyprus, ...	3,707	140,000	Independent Malacca,	31,461	300,000
Independent Arabia,	968,141	3,700,000	Straits Settlements,	1,445	308,097
Aden, ...	8	22,707	Chinese Empire, ...	4,561,500	435,000,000
Persia, ...	635,964	7,000,000	Hongkong and Macao, ...	40	216,000
Afghanistan, ...	278,647	4,000,000	Japan, ...	146,613	34,338,404
Kafiristan, ...	19,957	1,000,000	Sunda Islands and Moluccas, ...	655,921	27,735,000
Beluchistan, ...	106,767	350,000	Philippine and Sulu Islands, ...	114,130	7,450,000
British India (inclusive of British Burma),	869,686	253,000,000	Caspian Sea, ...	169,666	.....
Native States, ...	604,590		Sea of Aral, ...	25,869	.....
Laccadive, Maldive, Nicobar, and Andaman Islands, ...	6,500	180,000			
French Possessions in India, ...	197	271,460	Total (in round numbers),	17,156,000	848,000,000
Portuguese Possessions in India, ...	1,437	444,617			

RUSSIA IN ASIA.

The name of Russia in Asia is that commonly given to all the Asiatic possessions of Russia except those belonging to the lieutenancy of the Caucasus (which have been already treated of). Formerly they were all comprehended under the name of Siberia; but since the extension of the Russian dominions in Central Asia a territorial division called Central Asia has been formed, partly taken from what was formerly Siberia, and partly formed of newly acquired territory.

POLITICAL DIVISIONS.—The administrative divisions both of Siberia and Russian Central Asia, with their separate population, are exhibited in the following table:—

Governments.	Area in square miles.	Population (1873).	Pop. per sq. mile.
Coast Province, ...	730,024	50,512	·07
Amur Province, ...	173,559	25,204	·14
Trans-Baikal, ...	240,780	447,563	1·8
Irkutsk, ...	309,190	358,629	1·2
Yakutsk, ...	1,517,126	236,067	·15
Yeniseisk, ...	992,878	396,783	·4
Tomsk, ...	329,037	838,756	2·5
Tobolsk, ...	531,978	1,086,848	2·0
Siberia, ...	4,824,572	3,440,362	·7
		(1870).	
Akmolinsk, ...	210,565	381,900	1·8
Semipolatinsk, ...	188,299	510,163	2·7
Turgai (1867), ...	202,192	338,802	1·6
Uralsk, ...	141,484	346,715	2·4
Semirechensk, ...	155,296	539,530	3·4
Sir Daria, ...	166,003	953,200	5·7
Zarafshan, ...	19,665	286,449	14·5
Valley of the Tekes, ...	5,499	2,600	4·7
Amu Daria, ...	39,977	109,585	2·7
Trans-Caspian Territory, ...	126,286	275,000	2·2
Fergana, ...	28,230	800,000	28·3
Central Asia, ...	1,283,496	4,567,344	3·5

PHYSICAL FEATURES AND SURFACE PRODUCTS.—The portion of this immense territory in the extreme south-west is partly below the level of the ocean, and is drained either into the Caspian or (by the Amu Daria and Sir Daria) into the Aral. A large part of this region is desert, and the soil is frequently impregnated with salt. The remainder of the Russian territory, though comprising the whole of Northern Asia from west to east, has much less diversity of surface than might be presumed from its extent. If the meridian of 105° be assumed as a line of demarkation, two regions are formed—a western and an eastern, exhibiting a very marked difference in the configuration of their surface. Both regions have their greatest altitude in the south, and may be considered as a vast inclined plane, sloping gradually north to the Arctic Ocean; but the eastern

region is traversed in different directions by several mountain-ranges, whereas the western region, with the exception of the chain of the Ural on the western, and the Altai range and the western spurs of the Thian Shan range in the south, forms a vast plain, almost unbroken by any greater heights than a few hills and the banks of the rivers which wind across it. This plain, towards the south, has a height of about 2000 feet above the sea, but towards the north is so near its level as often to become extensively inundated. For convenience of description it has been arranged, according to its productive powers, in four divisions—the steppe or pastoral, the agricultural, the woody, and the moorland or toundra.

The Katunya Mountains, with Mount Belukha, the highest peak in the Altai Range.

The steppe, occupying the most elevated part of the plain, extends from the southern frontiers north to lat. 55°; and from the western frontiers, within these limits, east to the banks of the Irtish. The greater part of it consists of what is called the Steppe of Ishim, and has a bare and almost sterile surface, often incrusted with salt, but also occasionally covered with a scanty vegetation. The agricultural division extends northwards to about lat. 60°. In many parts, where it borders on the steppe, it has much of the same character, and has only occasional tracts which have been or can be advantageously brought under the plough; and in many other parts primeval forests are found. The extent of surface hitherto brought under the plough or devoted to cattle-rearing in Siberia is comparatively small, but it seems probable that in future years the area so utilized will be largely increased. All travellers are agreed that Siberia produces much more grain (wheat and rye) than it can consume, and facilities for export are

all that is wanting to increase this production enormously. That this will very speedily be supplied is no more than may be confidently expected, since the voyages of Nordenskiöld in 1875–76 have shown that there is in summer a practicable sea-route by way of Novaya Zemlya to the Obi and the Yenisei. In the autumn of 1877 an English steamer proceeded direct from Hull to Tobolsk, thus not only ascending the Obi but even a considerable distance up the Irtish. Within the agricultural division, though not properly belonging to it, is the Steppe of Baraba, situated between the Irtish and the Obi. It has a more abundant vegetation than the Steppe of Ishim, which it otherwise resembles, and

Crossing the Marsh in the Steppe of Baraba, the largest marsh in the world.

in its northern portion is covered with nearly continuous forests of birch and fir, haunted by numerous wild animals, including the beaver. From this the wooded division extends northward to lat. 64°, and in parts to 66°. The Siberian larch even ascends to 72° N., but in the higher latitudes the trees are seldom of very vigorous growth. The whole of this division is covered with vast forests of birch and different species of fir and pine; and its products are capable of being thrown open to commerce by the same route as that found for the agricultural products of the region higher up. The population, few in numbers, are settled chiefly on the banks of the Obi and Yenisei, and live mainly on game and fish; the latter, including salmon, sturgeon, and herrings, ascending from the sea as far as the confluence of the Tom. Wild animals also are very numerous, and many valuable furs are obtained. The last division is that of the moorland or toundra, which exactly resembles the moorland region of northern

European Russia. It extends along the shores of the Arctic Ocean, and has so rigorous a climate that even in summer ice is found a few inches below the surface. Here the reindeer exists in vast herds, both wild and domesticated; white bears and foxes are also numerous, and furnish valuable furs; and the coasts and mouths of the rivers are frequented by immense shoals of fish and flocks of fowl. The part of Central Asia lying east of the sea of Aral is in its western half quite desert, but in its eastern half fertile; and in this latter region are to be found the most thickly populated parts of all Russia in Asia. The alluvial tracts at the base of the mountains are, like a large part of Russia in Europe, covered with a rich black soil, capable of bearing an abundant crop from six to eight years in succession without manuring. The province of Fergana in the extreme south furnishes all the products of the sub-tropical zone, and among these excellent cotton, which, if the railway projected by the Russians to connect this region with the Volga is ever constructed, will be of great consequence for the cotton-spinneries of Moscow and Vladimir.

Siberia to the east of lon. 105°, forming nearly one-half of the whole territory, has a much more diversified surface than the western region, and owing partly to its general ruggedness and elevation, and partly to the greater severity of its climate, has much less land adapted for agricultural purposes. The Sea of Okhotsk has a bold and rocky shore, and the country behind rises with a steep ascent till a mountain-range is formed, with a general altitude of nearly 3000 feet above sea-level. This range, under the name of the Stanovoi Mountains, runs nearly parallel with the coast to the point opposite the south-western angle of the Sea of Okhotsk, where, under the name of the Yablonoi Mountains, it turns south-west, and throws out numerous ramifications, which, continuing west, throw their arms round Lake Baikal, and cover almost all the south part of the government of Irkutsk. The best portions of Eastern Siberia occur in the south of the government of Irkutsk, where, in the lower and more open valleys in the vicinity of Lake Baikal, cultivation has been attempted with success, and the oak and hazel, unknown in other parts of Siberia, are found growing freely. Still farther north, in the government of Yakutsk, as far as the town of same name, corn is cultivated in patches in the upper vale of the Lena, though the far greater part of it is covered with fir and pine. The north part of Eastern Siberia consists of two distinct portions, the one extending from lon. 105° E. to the lower valley of the Lena, and the other from that valley east to Behring's Sea. The former portion is very imperfectly known; the latter, as far as the Kolyma, is traversed from north to south by chains of low hills, separated from each other by wide valleys or open plains, and generally overgrown with stunted larch and birch. To the east of the Kolyma branches from the Stanovoi Mountains stretch north, and form a series of ranges which frequently rise from 2000 feet to 3000 feet. Some of these penetrate to the north coast, and are seen forming precipitous cliffs at Cape Shelagskoi, and other headlands. Other ramifications from the Stanovoi pursue an opposite course, and traverse the remarkable peninsula of Kamtchatka almost centrally to its southern extremity. The Amur district and the island of Saghalien are also mountainous. In both the climate is for the most

part too cold to admit of the practice of agriculture. Only in the extreme south of the maritime district of the Amur can cereals be grown to advantage, and there since 1866 considerable settlements (chiefly of discharged Russian soldiers) have grown up. On the island of Saghalien there are extensive forests, and the chief products of the island are timber and furs, which are sold by the natives to Japanese, American, and other traders. The fisheries round the coast are also very lucrative.

The principal **rivers** of Siberia are among those draining the largest basins in the world. (See ASIA.) Besides the Caspian Sea and the Sea of Aral the principal **lakes** of Asiatic Russia are Lakes Balkhash (area 8420 square miles) and Baikal (area 12,440 square miles). Of the four the last is the only one whose waters are fresh. Those of Lake Balkhash are extremely salt, while those of the other two inland seas are considerably less salt than those of the ocean Both Lakes Balkhash and Baikal are frozen from November to April, and then traffic is carried on over the ice. Steam-boats ply in summer on Lake Baikal. In Lake Balkhash fish are few, but in Lake Baikal both salmon and sturgeon as well as other fish are very abundant, and this latter lake also has a fish peculiar to itself, the golymka (*Calionimus baikal*), which resembles the flying-fish. The Caspian Sea, which is the largest isolated sheet of water in the world, is also very rich in fish, principally sturgeon and sterlets. On this sea the Russians always have a fleet of war-ships, mostly sailing-vessels, and the surface is likewise traversed by steam-packets. The navigation is at all times difficult and often perilous. The Sea of Aral is economically of little importance.

GEOLOGY AND MINERALS.—The geology of Siberia is very imperfectly known. Granite and crystalline schists are found chiefly on the eastern slopes of the Ural Mountains, in the south among the mountain-ranges of the Altai as far north as lat. 57° N., and between lon. 85° and 120° E., chiefly in the governments of Tomsk and Irkutsk, on both sides of the Upper Tunguska and east of the Yenisei; in the upper part of the basin of the Middle Tunguska; and in the very eastern extremity of the country, from lon. 165° to the shores of Behring's Strait. Palæozoic rocks, including under the designation rocks belonging partly to the Silurian, partly to the Devonian, and partly to the Carboniferous systems, are developed chiefly in the south, where they occupy a large space in the form of a triangle, the apex of which is at the town of Irkutsk, and the base on the parallel of 60°, between lon. 85° and 120° E. Secondary rocks higher in the series than the carboniferous system commence near the northern shores of Lake Tenghiz, and stretch northwards, occupying a considerable tract on both sides of the upper valley of the Irtish. But by far the most extensive formation in Siberia is the tertiary, which stretches almost continuously from the last slopes of the Ural Mountains east across the Obi to the valley of the Yenisei; and in other quarters, though more intermingled with earlier formations, covers no inconsiderable portion of the whole surface. The shores of the Arctic Ocean, almost throughout their whole extent, and to a considerable distance inland, have a deep alluvial covering, remarkable for containing deposits of fossil elephants and other animals in

such quantities that the ivory obtained from them forms an important article of commerce.

The minerals of Siberia are evidently of immense value, and though the real extent of surface on which they are found is as yet only roughly guessed at, there cannot be a doubt that the most precious of all the metals exists there in greater abundance than in any other part of the Old World. Besides the eastern slopes of the Ural Mountains, which are now reckoned to the European provinces of Russia, auriferous deposits are found in some of the eastern regions, particularly in the governments of Tomsk and Yeniseisk, where there is a tract larger in area than the whole of France containing gold, not in its alluvia, but in the very matrix of its rocks of palæozoic schists and limestones, which, when pounded and analysed, are found to be more or less impregnated with gold. The principal mining districts are those of the Ural already mentioned, the Altai, and Nerchinsk, in the basin of the Amur. Besides gold, iron, copper, silver, platinum, lead, tin, and zinc are found in greater or less abundance. The other minerals of Siberia deserving of notice are the emerald and topaz, of which there are celebrated mines at Nerchinsk; salt, found in natural crystals on the banks of lakes, chiefly in the steppes of Ishim and Baraba; jasper and porphyry of great beauty, quarried especially in the valley of the Charysh among the Altai Mountains; lapis-lazuli, found among the mountains in the vicinity of Lake Baikal; malachite, obtained in greater or less quantity from all the mining districts, containing copper; and mica, in the form of large plates, extensively used as a substitute for glass, and found in greatest abundance on the banks of the Vitim. In Central Asia there are immense deposits of coal both in the Kirghiz steppes and in Russian Turkestan, a circumstance of immense importance with reference to the construction of the projected Asiatic railway already referred to.

Native House, Kamtchatka.

CLIMATE.—This country is remarkable for its rigour. The isothermal line which skirts the southern coast of Iceland, in proceeding east, descends rapidly till it reaches St. Petersburg, and then more gradually till it reaches lon. 100° E., where it is found in lat. 52°. From this it proceeds nearly due east, passing through the southern part of Lake Baikal, the town of Nerchinsk, and the southern extremity of Kamtchatka. It thus appears that the southern coast of Iceland, in lat. 63°, has the same mean temperature as Eastern Siberia in lat. 52°; in other words, that in proceeding from west to east the cold increases so much as to make places in the same latitude as Berlin to have a climate nearly as

cold as Iceland. In the same manner the line of permanent ground-frost descends in parts of Siberia as far south as lat. 56°, nearly the same as that of Edinburgh; and over the whole country to the east of the Ural Mountains is as low as lat. 60°. This low mean temperature is not, however, due to the prevalence of a low temperature the whole year through, but is the result of a very rigorous winter being followed by an extremely warm summer, a fact which the following figures will serve to illustrate:—

	Mean Winter Temperature.	Mean Summer Temperature.		Mean Winter Temperature.	Mean Summer Temperature.
Kasalinsk, ...	13·5°	75°	Irkutsk, ...	- 1°	61·5°
Barnaul, ...	0·5°	64°	Yakutsk, ...	- 38°	63°

At Verkhoyansk, in 67½° N., 134° E., where it is even colder than at Yakutsk, the mean January temperature is -55·5° Fahr., the mean of July 60°. For the sake of comparison it may be mentioned that Edinburgh has a mean winter temperature of 38½°, and a mean summer temperature of 57° Fahr. The consequence of this distribution of temperature is that during the short hot summer melons ripen in all Siberian gardens, although European fruit-trees are absent. In the valley of the Ili, however, where the severe winter lasts scarcely three months, even peaches and pomegranates are grown with success.

MANUFACTURES AND TRADE.—The manufactures are very limited, and are confined for the most part to a few of the larger towns, where government factories have been established. The more important articles are leather, earthenware, porcelain, glass, and hardware. In some places, as at Telma, large woollen and linen factories employ a considerable number of hands, chiefly exiles, in weaving woollen and linen cloth, and in conducting all the previous processes of preparing the wool, flax, &c. The trade is of considerable extent; and in so far as confined to the produce of the country consists chiefly of cattle, fish, caviar, furs, skins, and metals. A very important transit trade is also carried on across the country between Russia in Europe and China. From the latter country by far the most important article is tea, both in the dried leaf and in the form of cakes or bricks. The greater part of the latter is disposed of to the nomadic tribes, and a very large proportion of the former never passes beyond the limits of Siberia, but is retained for home consumption. Other articles of importance from China are coarse cotton stuffs, rhubarb, silks, satins, &c. The chief mart for this trade is the town of Kiachta. For the interior traffic the rivers naturally furnish the most important conveyance; but when these become closed with ice other means of conveyance must be resorted to, among which the most characteristic is that of sledges drawn by reindeer or dogs. The most extensive fairs for mercantile transactions are those of Obdorsk, on the Obi; Turukansk, on the Yenisei; Ust Yansk, on the Yana; and Ostronovo, on an affluent of the Kolyma.

PEOPLE.—The races and tribes scattered over the different parts of Siberia are so numerous that little more can be done here than to give the names of the more important. At least two-thirds of the whole population of Siberia proper is Russian, and consists either of voluntary emigrants, who have found it their

interest to settle in the country, or of exiles and their descendants. In regard to the exiles Siberia is merely a penal settlement, and hence that portion of the population which, as coming from Europe, ought to be the most civilized, is not likely to be the most exemplary. During the last decade or two the number of offenders deported to Siberia has amounted on an average to about 13,000 yearly. Their condition is said to be on the whole not an unenviable one. They are looked upon by the settled Siberians rather as unfortunates than criminals, and consequently soon feel at home. The more industrious can easily attain to a comfortable position, and most of those who are pardoned do not choose to leave the land. In the smaller towns the greater part of the population often consists of banished persons. Formerly the graver criminals were sent to work in the government mines in the neighbourhood of Nerchinsk in the government of Trans-Baikal, but this has now been done away with. Ninety per cent of the Siberians proper (the settlers) are engaged in agriculture. They are distributed into communes or parishes, and there is no individual property in land. All the land belongs to the state, which allots portions to the several communes, and every year after the harvest a division of the common land is made among the inhabitants of the commune. The indigenous tribes of Asiatic Russia are scattered over its whole length and breadth. Beginning at the Ural Mountains and proceeding eastward we find the Samoyedes in the north-west. They live as breeders of reindeer in the toundras from the White Sea to the Bay of Khatanga, and are supposed to have come originally from the mountains at the sources of the Obi and the Yenisei. The tribe now numbers only about 11,000, and is rapidly becoming extinct. Immediately south of these the Ostiaks, a Finnish tribe, occupy both sides of the Obi, up to the confluence of the Irtish, the northern part of the steppe of Baraba, and the whole of the woody region eastwards to the banks of the Yenisei. They live by fishing and hunting, and are not much more numerous than the Samoyedes. Some of them have embraced Christianity, but the great majority continue addicted to Shamanism. They are closely allied to the natives of the northern provinces of China both in language and customs. We next come to the Turkish or Tatar tribes which are extended over a very wide stretch of territory both in Asia and Europe, from the Lena, where the isolated tribe of the Yakuts are settled, to the shores of the Black Sea and the Mediterranean to which the Osmanli Turks have forced their way. "With some exaggeration," says Oscar Peschel, "it has been said that an Osmanli from Constantinople can make himself intelligible to a Yakut on the Lena. But it is certain that the branches of the Turkish language separated by this enormous distance are strangely alike." In religion the majority of the Turkish tribes are, like the Osmanli Turks, Sunnite Mohammedans, and recognize the sultan as the head of their faith. Of the Tatar tribes in Asia the most important are the Kirghiz, the Turkomans, the Uzbeks, and the Yakuts; and of these the first mentioned is by far the most wide-spread, most numerous, and most energetic. Their number is said to be at least 3,000,000. They are all nomadic, wandering in hordes over the governments of Uralsk, Turgai, Akmolinsk Semipolatinsk, and Semirechensk. Though they

speak the Turkish language their physical characteristics show in many points a strong resemblance to the Mongolian tribes, and their family names also give evidence of an admixture with Mongolian blood. They rear cattle, horses, the fat-tailed sheep, and the Bactrian camel. The Kirghiz migrate in three hordes between the Ural and the Ili, the Great Horde between Lake Balkhash, the Issyk-Kul and the Ala-tau in the government of Semirechensk; the Middle Horde to the north in Semipolatinsk and Akmolinsk; and the Little Horde in Uralsk and Turgai in the western part of the steppe. They do not call themselves Kirghiz but Kasaks (Cossacks), meaning "homeless." Only the nomads of the Thian-Shan range on the Issyk-Kul call themselves Kara-Kirghiz (black Kirghiz). The Kirghiz of the three hordes are scattered over the vast steppe in groups of at most twenty *yurten* (felt huts or tents), while the Kara-Kirghiz are mostly congregated in bodies of several thousands, their rows of tents sometimes stretching for miles together. The Turkomans, numbering from 1,000,000 to 1,500,000, occupy a territory stretching between the Caspian Sea and the Sea of Aral, the khanates of Khiva and Bokhara, Afghanistan and Persia, and consisting in the main of sandy deserts surrounded by a fringe of steppes. Of this territory the portion between the Caspian Sea, the Sea of Aral, and Persia has formed since 1873 the Russian Trans-Caspian district, to which was added in 1881 the territory of the Akhal Tekkes along the north-east frontier of Persia. The remainder is still independent. Though possessing a common language and religion (Sunnite Mohammedanism) the Turkomans do not form a single nation, but are divided into numerous tribes and clans, in which the mollahs and "elders" enjoy a certain amount of consideration although they have no recognized authority. The most formidable of the still independent tribes is that of the Tekkes of Merv, the district watered by the lower Murghab, on the east bank of which stands their fort of Kala Kaushid Khan (Merv). The ancient city of Merv, last destroyed in 1784, has never been rebuilt as a town or city proper. The Turkomans in general are described by Vambery as "unquestionably the wildest and most untamable nomads in all Asia." Their favourite mode of maintaining themselves is by plunder,

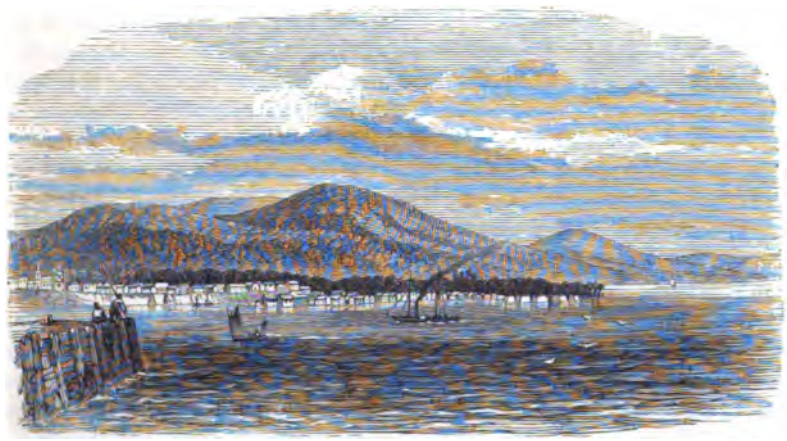
Kirghiz Merchant at Semipolatinsk.

and when plunder is not within reach the men live idly in their tents, leaving the drudgery of more peaceful labours to the women. The Uzbeks, who take their name from Uzbek, one of the commanders of the Golden Horde which overran European Russia in the twelfth century, as their kinsmen the Osmanli take theirs from Osman, first appear in history as occupying the territory at the northern end of the Caspian Sea, and now form the dominant race in the khanates of Khiva and Bokhara, while they are numerous also in the former khanate of Khokand (now the district of Fergana in Russian Central Asia), and in Chinese Turkestan. The Yakuts, numbering about 300,000, inhabit the government named after them, and confine themselves almost entirely to the rearing of horses and cattle, and the preparation of dairy produce from them. Not a few of them are nominal converts to Christianity, though the majority still adhere to Shamanism. They are an interesting tribe, intelligent, honest, and extremely hospitable, skilful handicraftsmen, famous hunters, and keen traders. The women are remarkable for their chastity, and children, it is said, never disobey their parents, even when they have quitted their father's roof. Between the Yakuts and the other Tatar tribes, in the upper and middle regions of the basin of the Yenisei, dwell the Tunguses, who are partly settled cattle-rearers and cultivators of the soil, partly nomads. Of the latter some (the Tunguses of the Steppes) are true nomads, migratory cattle-rearers, the others (Tunguses of the Forest) chiefly hunters or fishers. The Steppe Tunguses are often spoken of as horse, reindeer, or dog Tunguses, according to the animal which they use as a beast of burden. The southern Tunguses are Buddhists, the northern Shamanists. Vast as the region is over which they are spread their number is only about 70,000. The Mongolian race, comprising in Asiatic Russia the Kalmucks and the Buriats, inhabit the southern part of Eastern Siberia. They are all Buddhists in name, though still retaining Shamanistic practices. The Kalmucks are found among the Altai Mountains. They are almost without exception nomads, and show little inclination for agriculture, but the accounts of travellers agree in representing their territory as being rapidly encroached on by Siberian settlers. They have some skill in mechanical arts, particularly in the working of iron, and make their own gunpowder. The Buriats dwell chiefly on both sides of Lake Baikal, and eastwards as far as the Onon. For the most part they are settled and cultivate the soil. The tribes of north-eastern Siberia, Yukaghirs, Koryaks, Chukchis, &c., are all very small in numbers, none of them numbering more than 15,000 individuals. They are almost all nomadic, and dependent for their existence on the reindeer. In the extreme north-east, however, on Behring's Strait, there is a settled tribe of Chukchis living to the north of Cape Chukotsky, while south of that cape as far as Cape Olyutorsky, the coast is inhabited by Esquimaux, immigrants from America.

The only important section of the inhabitants of Asiatic Russia whom it remains for us to notice are the Tajiks (sometimes improperly called Sarts), a people of Iranian origin (though now much mixed with other races), dwelling among the Uzbeks in the south-eastern part of Central Asia. They are the survivors of the original inhabitants who were subjugated by the Uzbeks in the

sixteenth century, and are still the principal cultivators of the soil in what is the most fertile and most thickly populated part of Asiatic Russia. They are described as an unwarlike but industrious people, chiefly bent on gain, and not over-scrupulous as to the methods by which they attain their wealth. They are detested by the Uzbeks not only on account of their treachery and deceit, but also as being, like the Persians, Shiite Mohammedans, while the Uzbeks are, like the other Turkish Mohammedans, Sunnites, that is, accept the whole of the Sunna or traditional Mohammedan law as well as the Koran.

CHIEF TOWNS.—There are no large or even considerable towns in Russia in Asia except in the south-east of the central provinces. Tobolsk (18,000) at the junction of the Tobol and the Irtish is the seat of a considerable trade, but



Nikolaievsk, at the mouth of the River Amur.

has somewhat diminished in importance since the seat of government of Western Siberia was transferred from here to Omsk (8000), a fortified place at the confluence of the Om and Irtish. Both of these places, however, are outstripped by Tomsk (20,000), on the Tom, near its confluence with the Obi, situated in a gold-mining district. Still more populous is Irkutsk (23,000), the capital of Eastern Siberia, on the Angara. It stands in a well-cultivated district, has manufactures of cloth, &c., and carries on a considerable trade in furs and Chinese products. The seat of government in the Amur district is Nicolaievsk (5000), a fortified place at the mouth of the river Amur.

The towns of the populous region of Central Asia all agree in being composed of narrow irregular streets traversed by canals serving as aqueducts, and having the houses concealed by gardens with inclosures of earth. The most important is Tashkent (78,000), lying to the east of the Sir Daria in a well-watered district rich in fruits. To the south, on the left bank of the Sir, stands Khojent, with a population nearly as large, occupying an admirable position at the point where the caravan routes from Khokand, Bokhara, and Chinese Turkestan meet. It has manufactures of cotton. Khokand, situated in a

magnificent plain to the south of the Sir Daria, is an important industrial and commercial town, with a population of at least 30,000. South-west of Khokand, near the frontiers of the present khanate of Bokhara, lies Samarkand, which till 1868 belonged to that khanate, and, though now containing a population of only 10,000, was in the fifteenth century the capital of the empire of Tamerlane, and was long one of the most celebrated towns in Asia. It contains many monuments of its former grandeur, and among others Tamerlane's tomb.

HISTORICAL SKETCH.—Siberia appears to have been partly conquered by Genghis-Khan and his successors, but did not become known to Europe till 1580, when a Cossack called Yermak Timofeyef, who had long robbed the vessels which navigated the Volga, finding himself hotly pressed by the Czar of Moscow, crossed over into Asia with his accomplices. Their number sufficed to form a small army, and their courage soon enabled them to acquire extensive settlements. These Yermak offered to the czar on the condition of obtaining pardon. The offer was accepted, and thus Russia for the first time obtained a footing in Asia. The territories thus conquered belonged to the Tatar prince Kutshum-Khan, and included his residence, which, called by the natives Isker, and by the Cossacks Sibir, has given name to the whole country. Within ninety years after nearly the whole of Siberia proper was conquered chiefly by Cossack troops. In 1639 the Sea of Okhotsk was reached, and in 1658, Nerchinsk in Trans-Baikal founded. In 1689, and again in 1727 the Argun river, and after its confluence with the Amur, the northern watershed of the latter river was fixed by treaty as the frontier on the side of China. To these limits the Asiatic dominions of Russia remained confined till the present century. In the west, however, the southern frontier was constantly exposed to predatory inroads of the Kirghiz hordes, against which a line of forts planted at intervals of from 12 to 18 miles, with Cossack watch-stations to give the alarm at about every third mile, was found an insufficient protection. About 1840, accordingly, Russia determined to bring these hordes under control. In 1847 Fort Aralsk was founded near the mouth of the Sir Daria, and other forts were erected at the most suitable points for keeping the Kirghiz in subjection. In 1852 began the attacks of Russia on the khanate of Khokand, the subjects of which were guilty of the same practices as the Kirghiz, and after several years of interrupted warfare Tashkent was occupied in 1865. Further complications with Khokand soon arose, however, and did not terminate till the whole of the khanate was annexed by Russia in 1875. Meanwhile Russia had come into collision also with Bokhara and Khiva, the former of which was obliged to cede to Russia in 1868 the valley of Zarafshan, and the latter in 1873 all the territory belonging to it on the right bank of the Amu Daria, and to allow Russia to establish stations and depots for war-steamers on the left bank also. In the year last mentioned the Trans-Caspian district between the Caspian and the Sea of Aral was also occupied in order to keep the Turkomans in subjection, but the Turkomans who still retain their independence (especially the Tekke tribe) are a constant source of annoyance on this frontier. Russia has likewise made considerable extensions of her Asiatic territory in the present century at the expense of

China. Since 1850 it has occupied the Amur district without resistance or remonstrance. During the revolt of Eastern Turkestan from China Russia found itself compelled in 1871 to occupy also the province of Kuldja, in the north of that territory, in order to put an end to the anarchy that prevailed there, but this occupation was not regarded as final, and in 1881 a treaty was concluded between Russia and China providing for the restoration to the latter of the whole of this province with the exception of a small district in the west.

INDEPENDENT TURKESTAN.

Independent Turkestan now comprises the khanates of Khiva and Bokhara, and the territory of the independent Turkomans between these khanates and Afghanistan and Persia. The whole area of this territory is about 194,000 square miles, and the population about 3,000,000.

KHIVA formerly occupied a large extent of surface on both sides of the Amu Daria or Oxus, but since the cession to Russia, in 1873, of its territory on the east of the Amu, is now confined to the west side of this river. The total area of the khanate is 22,317 square miles; the estimated population 700,000, or about 31 to the square mile.

A great part of the surface consists of deserts, thinly inhabited or uninhabitable; but along the Amu the land is of a very different character, consisting of rich alluvial loam of the greatest natural fertility. Owing to the great dryness of the atmosphere, however, it soon becomes so stiff and hard that it cannot be penetrated by any ordinary implement. For this the obvious remedy is irrigation; and accordingly, from the earliest period, a mode of culture resembling that of Egypt has been practised. Large canals from the river, with numerous minor branches, intersect every part of the surface, supplying moisture where it is wanted, or removing it where it is in excess, and securing the most luxuriant crops of wheat, maize, rice, barley, and legumes. Cotton and madder are also generally cultivated. The climate is remarkable for the brightness of its sky, which, with the exception of January and December, when mists prevail, is generally without a cloud. The summer is very warm, the winter severe but short. Manufactures are very unimportant. The only articles of any consequence are earthenware and bricks; a glazed description of the latter, remarkable for beauty of colour and fineness, is in great demand for covering the interior of mosques; some cotton and mixed goods are woven, but they are said to be among the worst which come from the East. Trade is carried on chiefly with Russia. The principal exports are raw and spun cotton, in return for which are received various articles of European manufacture, as metals and ironware, woollen, cotton, and silk goods, &c. The government of Khiva is an unmitigated despotism. The greater part of the inhabitants are Tajiks and Uzbeks, in

nearly equal numbers. (See RUSSIA IN ASIA, People, and Historical Sketch.) Khiva, the capital of the khanate, is situated at the junction of two canals, 50 miles west of the left bank of the Amu, and stands on an alluvial flat covered with orchards, vineyards, and grain, rice, and tobacco fields. Its melons are famed throughout Asia. Formerly it was a great slave-mart, but the khan has been compelled by the Russians to abolish slavery throughout his dominions. Population about 15,000.

BOKHARA occupies the territory to the south-east of Khiva between Russian Turkestan and the territory of the independent Turkomans. It has an area of 93,300 square miles, and a population of about 2,150,000, or nearly 24 to the square mile.

In the west the country is to a great extent occupied by deserts, and low and naked ranges of hills, and the cultivated portions of it are confined to the valleys of the rivers, especially the Oxus or Amu Daria. The climate and products are here similar to those of Khiva, and the modes of cultivation are likewise the same in both khanates. The population here also consists mainly of Uzbeks and Tajiks; but there are also Kirghiz, less numerous than the Tajiks; about 60,000 Arabians, descendants of the soldiers who were brought into the country by the third caliph of Bagdad on the occasion of the conquest of Turkestan; Persians, who have chiefly been brought as slaves to Bokhara; Turkomans, Hindus, and about 10,000 Jews who live in the towns beyond the protection of the law, and accordingly oppressed by the other inhabitants. The eastern portion of the khanate, comprising the former independent khanates of Karateghin and Darvaz conquered by the emir of Bokhara in 1878, belongs to what is called the Pamir Plateau (sometimes designated "the roof of the world"), lying between the Thian Shan and Hindu Kush ranges on the north and south and bounded on the east by the Kizil Yart Mountains. The plateau is composed of a series of broad gently undulating grassy valleys, which are nowhere less than 10,000 feet above sea-level. The mountains forming its eastern boundary have peaks rising to the height of 25,500 feet, and on the southern frontier of the plateau is the highest lake in the world, Lake Sir-i-kol (more properly Kul-i-kalan, that is, great lake), at the height of 15,600 feet. The plateau is chiefly inhabited by Kirghiz nomads; but in Karateghin, immediately to the south of the Thian Shan range, there is a settled population of about 100,000 Tajiks. Bokhara is distinguished from the other countries of Central Asia by its numerous schools, and in the same proportion by the amount of culture diffused among the people generally; but the women are even more degraded than in other Mohammedan countries. The rule of the emir is absolute, although he is to some extent under the influence of the clergy. The manufactures are unimportant, but there is a very considerable caravan trade, cotton, rice, silk, and indigo being exported, and woven goods, sugar, iron, &c., being imported. Above all, Bokhara is remarkable for its religious fanaticism, and on that account several of the European travellers who have recently visited the country have been exposed to great annoyance and even danger. Since the cession of the valley of Zarafshan with the town of Samarkand to Russia in 1868, there are now only two towns of any importance

in Bokhara, namely, the chief town Bokhara, with a population of about 70,000; and Karshi, with about 25,000. The capital, according to Vambery the centre of Tatar civilization, is ill-built and has a gloomy aspect, and in luxury of dress and mode of life is far behind the towns of Western Asia. Among the people there reigns the utmost moral corruption along with a rigorous adherence to outward forms.

The **Turkomans** and the **Turkoman territory** have received sufficient notice under RUSSIA IN ASIA (People, and Historical Sketch).

TURKEY IN ASIA.

Turkey in Asia is made up of the peninsula of Asia Minor with the islands on its coasts, the plain watered by the Tigris and Euphrates and part of the mountainous region at the head of this plain, the region of Syria and two strips in Arabia on the shores of the Red Sea and the Persian Gulf. For administrative purposes it is divided into the vilayets of Jezairi-bahri-Sefid (the islands of the Ægean Sea), Khodavendikiar, Aidin, Ankara (Angora), Konia, Kastamuni, Sivas, Tirabzon (Trebizonde), Erzerum, Van, Diarbekir, Syria, Adana, Haleb (Aleppo), Bagdad, Mosul, Basra, Hejaz, Yemen (the last two being Arabian vilayets). Not included in these vilayets are the mutessarifliks of Kharput, Lebanon, and Jerusalem. The total area of this territory is 729,484 square miles; the estimated population, 16,133,000.

PHYSICAL FEATURES, CLIMATE, AND PRODUCTIONS.—Confining ourselves in the present section to the territory north of 31° N. lat., and thus leaving the Arabian portions of the empire to be treated of under the head of the peninsula to which they belong, we may describe this territory according to the most general idea that can be formed of it, as consisting of two plateaux and an extensive plain. The larger and more elevated of the plateaux occupies the whole of its northern portion, stretching across it from the shores of the Archipelago to the frontiers of Persia and Transcaucasia, and comprising within its limits the peninsula of Asia Minor and the highlands of Armenia and Kurdistan. This plateau, which has an average elevation of 4000 feet to 5000 feet, forms the base of two parallel mountain-chains, the Taurus and the Anti-Taurus, which increase in elevation as they proceed towards the east, and present many remarkable cones and peaks, several of which rise beyond the line of perpetual snow. The other plateau, that of Syria and Palestine, is also traversed by two parallel ranges, which, breaking off nearly at right angles to the Taurus, proceed south at no great distance from the shores of the Mediterranean, and are continued almost without interruption across Arabia Petræa and the peninsula of Sinai to the Red Sea. This plateau is less remarkable for its height than for the depression of one of its valleys, which, in the line of the Jordan, is more than 1300 feet beneath the level of the sea. The extensive

plain, that of Irak and Mesopotamia, forming the lower basin of the Euphrates and Tigris, is bounded on the north by the Armenian, and on the west by the Syrian plateau, and, though now little better than a steppe, oftener covered with sand than verdure, originally possessed attractions which made it one of the earliest seats of empire.

A more detailed account of the surface and products of this region will be more conveniently given under the names, long well known to history and geography, of the different districts of which it is composed. These districts are Anatolia or Asia Minor, Armenia, Kurdistan, Irak Arabi, Al Jezireh or Mesopotamia, Syria (including Palestine), and the islands of the Archipelago.

Anatolia or Asia Minor (the former name from the Greek *Anatolē*, signifying

Gok Dagh, with the town and part of the Gulf of Ismid (Anatolia).

the East or Levant), consists of the greater part of the first of the two plateaux first mentioned in the general account of Turkey in Asia. It declines by gentle slopes on the west towards the Archipelago, and on the south and north is inclosed by the ranges of the Taurus and the Anti-Taurus, running east and west, not far from the shores of the Levant and Black Sea respectively. The loftier of these two ranges is that of Taurus, which is from 8500 to 10,500 feet in height, and is remarkable for its rugged character and for the numerous chasms and ravines by which it is intersected. Between these two main ranges there are many smaller ones, some of which have peaks even higher than those of the Taurus. The great number of salt and fresh water lakes is the most remarkable geographical feature of this region. The rivers are the Kizil-Irmak (*Halys*) and the Sakaria (*Sangarius*), flowing into the Black Sea; and the Sarabat (*Hermus*) and Menderes (*Mœander*) into the Ægean. All the rivers are shallow and rapid, and hence ill-fitted for navigation. In many places their course is

impeded by banks of sand and mud, and the silting up of their mouths has given an inland position to many places that in ancient times were considerable ports. The climate admits of no general description, owing to the diversity in the elevations of its surface, which presents winter and summer within one day's journey. The western shores are justly celebrated for their genial warmth, and so also is the coast facing the Black Sea. The elevated plains of the interior are extremely cold in winter, and the cold on the passes of the Taurus is intense. Karaman is oppressively hot in summer. The northern slope of the central plateau so abounds with forests of oaks, beeches, planes, ashes, and other species of building timber, that the Turks have called one of its forests the "Sea of Trees." On the coast are entire woods of the finest kinds of fruit-trees, among them the cherry-tree, to the celebrity of which the ancient *Cerasus*, now Keresoum, owes its name. The interior of the plateau (nearly one-third of the entire area) is on the whole a monotonous arid region, deficient in vegetation and exposed to extremes of temperature, and thus presenting a dreary contrast to the richly clothed terraces by which it is bordered. Everywhere except in this desolate tract the soil is productive, and in some parts extremely fertile, always yielding crops although it is never manured and only scratched on the surface with a rude plough. The products include all the grains and fruits of southern Europe, including maize, rice, dates, figs, melons, as well as opium, tobacco, gall-nuts, alkanet, valonia, &c. The country is frequently devastated by swarms of locusts. Among useful animals sheep, horses, and goats are the most important. The Angora goat, which thrives only in the district to the west of the Kizil-Irmak, is celebrated for the fineness of its wool. Buffaloes are used for draught, and the camel for the transport trade. Asia Minor has few large beasts of prey, except a species of panther, called *kaplan* by the Turks. In the less frequented regions jackals are common, and there are a few bears, wolves, and wild hogs. Silver, copper, and lead are the most important metals, and salt and lignite are the only other minerals of consequence. The lake of Tuz Gul in Karamania may almost be described as a huge mass of crystalline salt.

Armenia is a mountainous volcanic region connecting the plateau of Iran with that of Asia Minor and with the Caucasus region. Its volcanoes are all quiescent, unless we except Mount Ararat, the mountain which stands on the borders of the Russian, Turkish, and Persian possessions and dominates the whole plateau, reaching a height of nearly 17,000 feet. Of this mountain an eruption took place in 1840, accompanied by a disastrous earthquake. The climate of Armenia is cold but healthy. In the north there are good pastures feeding large numbers of cattle. Cereals and fruits are cultivated in the south, but here (in the province of Erzerum) extensive tracts are arid and desolate. The waters of Lake Van, which lies at the height of 5330 feet above sea-level and has an area of 1447 square miles, are alkaline, and in times of drought large numbers of fish in it are destroyed by the sulphate of soda that then becomes disengaged. Among the minerals of Turkish Armenia are copper, naphtha, and rock-salt.

Kurdistan, lying to the south of Armenia, and stretching like it into Persia,

is composed of the eastern part of the upper basin of the Tigris, and corresponds to the ancient Assyria. It is a mountainous region, difficult of access, containing in the upper parts considerable forests of oak, and also numerous pastures on which horned cattle, sheep, and fine-haired goats are reared, and in the valleys many fertile districts yielding rice, cotton, flax, and fruits, including gall-nuts, which are sent in great quantity to Smyrna for export.

The districts of Al Jezireh ("the island") and Irak Arabi, watered by the Euphrates and the Tigris, form together a single plain well defined by natural boundaries, having on the north the mountains of Asia Minor and Kurdistan, on the east the mountains and sands of Persia, on the south the Persian Gulf, and on the west a sandy desert stretching away to the mountains of Syria. The

Mount Ararat, from the Plain of Erivan.

whole region presents now-a-days a striking and melancholy contrast to what it was in ancient times, and even in the middle ages. Then its two great rivers flowed past magnificent cities, and the whole intervening plain was intersected by myriads of canals which brought the waters of the Tigris and Euphrates to every field and every dwelling; now the cities have altogether disappeared or have lost their former grandeur, and the plain is mainly inhabited by plundering Beduins or by oppressed fellahs who have no inducement to bestow labour on their fields when the result is only to enrich the Turkish tax-gatherer. Of the two rivers of this plain the Tigris, though the shorter, is by much the swifter, broader, and deeper, and accordingly conveys to the sea a much greater quantity of water than its rival. It has its sources at a considerably lower level than those of the Euphrates, but soon becomes enlarged by the tributaries fed by the snow-covered mountains on its left bank, and where its turbid yellow waters unite with the clear stream of the Euphrates it has a breadth more than a half greater than the latter river. The northern part of Al Jezireh produces in some parts cotton, silk, tobacco, olives and other fruits; in others only pasture, on which

Arabs rear horses, camels, and above all sheep. Kurds and Yezidis wander in the desert between the rivers. In Irak Arabi, which corresponds to the ancient Babylonia, vast alluvial tracts extend along the banks of the two rivers. Rice, cotton, bananas, dates, and indeed all kinds of fruit of the most excellent quality are produced, and would be produced in still greater abundance if attention were bestowed on the maintenance of the canals by which the two rivers are connected. The oak-forests of this district produce the best gall-nuts of the East, and the horses reared in the locality are also highly esteemed. Abundant springs of naphtha and bitumen are also a source of wealth.

Syria is another part of the Turkish Empire which can look back upon a glorious past, and which has sunk to its lowest condition under Turkish rule. It is in the main a mountainous region, and may be divided with reference to its surface into three sections; a northern section traversed in various directions by mountain ranges varying from 4250 to 5800 feet in height and watered by the Orontes; a middle section containing the two parallel ranges of Lebanon and Anti-Lebanon, between which lies the narrow valley of Bekka (the ancient Cœle-Syria, that is, hollow Syria, the valley of Hamath of the Bible) watered by the Leontes; and a southern section consisting of the plateau of Palestine about 80 miles in length and from 30 to 60 in breadth, and having an average height of from 2600 to 3300 feet, but intersected by the deep depression of the Jordan valley, in which lies the Dead Sea 1300 feet below sea-level. With respect to its climate and productions Syria may be divided into three longitudinal sections. On the west between the Mediterranean and the mountains, the country of the ancient Phœnicians and Philistines, the land is low and fertile but hot and unwholesome. In the middle region the land is high, well watered, and fertile, and enjoys a temperate and healthy climate. In the east, owing to the want of water, there is for the most part nothing but a sandy desert, but it is in this section that the oases of Palmyra, Damascus, and Hauran lie. The products of the country, in addition to the usual grains of southern latitudes, are millet, durrah, cotton, tobacco (that of Latakia and Sur (Tyre) being famous), indigo (grown on the banks of the Jordan), sugar-cane (near the coast), silk, madder, various medicinal herbs including the balm of Judea or Gilead. There are few palm-trees and few vines (except on the slopes of Lebanon); but cypresses, oaks, fig-trees, olives, and sycamores are plentiful. In Palestine the olive is still, as it was in ancient times, the most important of all the vegetable products. The heights of Lebanon are no longer adorned with their famous cedar-woods. Only a few aged specimens of this beautiful and valuable tree still survive. In place of the old forests there are now good pastures, and the western slopes of this range, which descend in artificial terraces supported by walls, and present the appearance of a vast staircase, are planted with olives, mulberries, vines, and fruit-trees. The useful animals of Syria include camels, horses, asses, mules, sheep, and long-haired goats. The minerals are iron, coal, rock-salt, and asphalt.

Of the islands that lie off the west coast of Asia Minor the most important are—Mitylene (the ancient *Lesbos*), the largest of all the islands, possessing two

of the finest roadsteads in the Mediterranean, an island covered with mountains the sides of which are cultivated, and exporting wine, cotton, fruits, madder, and valonia; Chio or Scio (in Turkish, *Saki-Adassi*, the isle of mastics), a mountainous island with charming valleys, producing abundance of fruit and wine, as well as the commodity to which it owes its Turkish name, and furnishing also marble and jasper; it has never fully recovered from its devastation by the Turks in 1822; Kalymno (Calamine), formerly famous for its honey; Cos or Stan-Co, with fine plantations of lemons and oranges mingled with maples; and Rhodes, the next island in size to Mitylene, a mountainous island subject to earthquakes, from which it suffered greatly in 1851, 1856, and 1863, but possessing an excellent climate and a fertile soil, producing corn, wine, and oil,

The Desert of Judea between Masada and Zuweirah, with a distant glimpse of the Dead Sea.

fruits, roses, and myrtles; celebrated in ancient times for its sailors, and afterwards as a seat of learning, and in more recent times as the seat of the knights of St. John, who defended the island and its fortified capital of the same name for 112 years against the Turks, to whom they finally succumbed in 1552. Besides these islands there is off the western coast the tributary island of Samos with its dependencies, and in the Sea of Marmora there lies, in addition to smaller islands, the island of Marmora (*Proconnesus*) containing rich quarries of white marble.

PEOPLE, LANGUAGE, RELIGION, &c.—In the absence of trustworthy data as to the population of the Turkish Empire it is impossible to give definite information regarding the density of the population in different regions. The total population of Asia Minor is believed not to exceed eight millions, and as the area is less than 190,000 square miles, this gives a population of about 42 to the square mile, and it is not likely that the density over any extensive district of Turkey in Asia is greater than this. To show the uncertainty of the estimates of population, however, it may be mentioned that those for the vilayet of Syria

vary between 1,000,000 and 2,250,000. The nomadic population is estimated at a million, and consists principally of Turkomans in the plateau of Asia Minor, Kurds in Asia Minor, Syria, and Mesopotamia, Arabs in the two latter districts.

The great majority of the population consists of Turks. Proportionally these are most numerous in Asia Minor, where they are estimated to form at least five-sixths of the population. In Syria they form considerably more than a half of the whole. In Asia Minor they inhabit the plateau in the interior, in Syria they are found mostly in the plains. For the most part they are settled cultivators of the soil, and they are described as a people of rather limited intelligence, but industrious, conscientious, and good-humoured. They are said to be steadily declining in numbers, and the cause assigned is misgovernment; for here, as elsewhere, the inhabitants of the Ottoman Empire are overwhelmed with imposts, and those of Turkish race suffer as much as any other section of the population from the exactions of the functionaries of Turkish rule. In religion and language they are identical with their kinsmen in Europe; but their social habits and institutions are considerably modified by the fact that they are predominantly agriculturists, while the European Turks are predominantly townsfolk.

In Asia Minor the section of the population next in numbers to the Turkish is the Greek, which is found all along the coast, especially the west coast, and forms the majority of the population in the islands, as well as a considerable element among the inhabitants of Syria. They are mostly merchants and sailors, and almost all speak the Greek (Romaic) language, and adhere to the orthodox Greek Church. Their total number is estimated at one million.

The Armenians are estimated to number between two and three millions throughout the whole of the Ottoman Empire. They are most numerous in the region to which they give their name, where in some districts they constitute the majority of the population. Elsewhere they are scattered over the towns of Asia Minor, as well as Turkey in Europe and various European and Asiatic countries. In Armenia itself they are cultivators of the soil; in other parts of the world mainly bankers, brokers, and shopkeepers. They are mostly of moderate height with a somewhat swarthy complexion, aquiline noses, black eyes and hair, and a lively look. Their mental capacity is good, and those who are educated are distinguished by superior cultivation and refined manners; but the mass of the people in their native country, in consequence of centuries of neglect, are grossly ignorant and superstitious. Their language is a rude dialect generally referred to the Iranian branch of the Aryan family of languages, and preserves many archaic forms, though it now contains a large admixture of Persian and Turkish elements. But what they are more attached to than either their country or their language is their church, adherence to which is the most constant sign of Armenian nationality. It is a branch of the Christian church with an independent organization, and having certain peculiar doctrines and a peculiar ritual. It originated in the sixth century, when it split off from the Greek Church in consequence of its adherence to the tenets of the Monophysites, that is, the sect admitting only one nature in Christ, which had been condemned by the council of Chalcedon in 451. They adore saints and their images, but do not believe

in purgatory. In Turkey their worship is conducted mostly in the night-time. The mass is said in the ancient Armenian, the sermon preached in the modern. The *catholicus* or head of the church has his seat at Echmiadzin, a monastery near Erivan in Russian Armenia. The holy oil which he prepares and sells to the clergy, and the frequent pilgrimages of the Armenians to Echmiadzin supply him with means for the support of a magnificent style of worship and of establishments for education. There are monastic orders, and a class called *vartabets*, who live like monks, cultivate the sciences, take degrees, and act as the vicars of the bishops. The secular priests must be married once, but are not allowed to take a second wife.

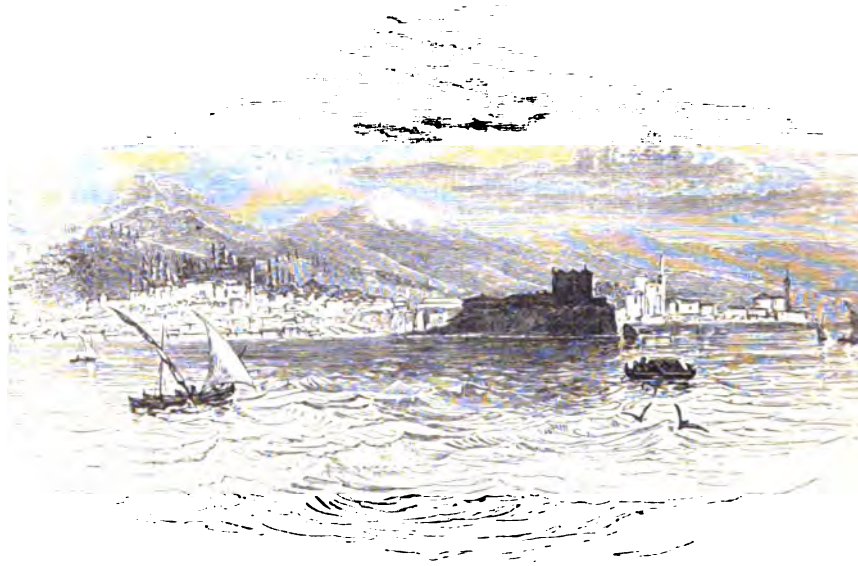
Kurds on Horseback.

The Kurds are a race of mountaineers whose home is in the region, partly Turkish and partly Persian, called after them Kurdistan, the country of the Kurds. On their own mountains they live as shepherds, cultivators of the soil, and bandits; but they emigrate in considerable numbers to northern Mesopotamia, northern Syria, and Asia Minor, as well as beyond the limits of the Turkish Empire, and in their new abodes they first lead a roving life, but afterwards settle down as tillers of the ground. Their language is a dialect of Persian now much mixed with Arabic and Syriac; their religion Sunnite Mohammedanism. Both in Turkey and Persia they pay but little respect to the government that claims their allegiance. In the region north of Mosul there lives a small sect called the Yezidis, whose religion is described as a curious compound of Manichæism, Mohammedanism, and Zoroastrianism. Their physical appearance is said to bear a strong resemblance to those of the ancient Assyrians as represented on the monuments of Khorsabad. Mosul is also the residence of the head of the non-united Nestorians, a sect of Christians who retain the ancient Syriac language for their worship although they do not understand it. Another branch of the Nestorians acknowledging the supremacy of the pope has its head at Diarbekir. In the plain of the Euphrates and Tigris Arabs predominate, but are mingled with Persians, Turks, Hindus, and Armenians. In the neighbourhood of Harran in the north-western highlands of Mesopotamia there dwells a small body of people who have preserved the old Syriac as their language to

this day. In Syria, throughout which Arabic is the prevailing language, there are, besides Turks and Greeks in the plains of the west, and wandering Arabs in the deserts, some peculiar remnants of ancient sects and nationalities. The principal of these are the Maronites and Druses in the Mountains of Lebanon (the latter also in the oasis of Hauran), and a remnant of the ancient Samaritans dwelling in and round Nablus (Shechem). The Maronites are a Christian sect whose origin was a consequence of the Monothelite controversy, being the remnants of the party who in the seventh century maintained that though Christ had both a divine and human nature he had but one will. Their political constitution is that of a military commonwealth. Adhering to their ancient customary rights, and defended from external attacks, they support themselves among the mountains by husbandry and the produce of their vineyards and mulberry trees, and have by their industry transformed rocks into gardens. They acknowledge the supremacy of the see of Rome, and every ten years their patriarch sends to the pope an account of the condition of the Maronite Church. Their number is perhaps 250,000. The Druses are a peculiar people of mixed Syrian and Arabic origin, as it is believed, although they themselves maintain that their fathers dwelt in the Celestial Empire. They are distinguished from the other inhabitants of Mount Lebanon by their powerful bony frames, and by the frequency of blue eyes and light, sometimes even red hair among them. Their religion is not very well known; but they despise both Christians and Mussulmans and claim to have had a revelation for themselves. Their home is in the south of Lebanon, where they lived on pacific terms with the Maronites till the present century; but in June, 1860, sanguinary conflicts took place between these two sects, in consequence of which both communities were made subject to a single governor appointed by the Porte, and since then the Druses have been emigrating in considerable numbers to Hauran. Their total number does not exceed 50,000.

CHIEF TOWNS.—As in the case of the country generally so also with regard to the individual towns there are no certain data for determining the population, and the estimates made by different authorities often vary considerably. In most cases the estimates given in the text are those of the *Almanach de Gotha*. The largest town and the principal port in Asia Minor is Smyrna (in Turkish *Ismir;* 150,000). It occupies a fine situation at the head of a gulf backed by wooded hills, and is the centre of the commerce between Europe and the Levant, the first of those ports in the Eastern Mediterranean and on the south shore of the Black Sea, to which the Italians give the name of *Scale di Levante*, and the French *Echelles du Levant*, that is scales or steps of the Levant, a name due to the fact that ships in visiting them must take a zigzag course like steps in a stair. The number of the Europeans in this port is considerable, and rapidly increasing, although they are often compelled to flee the town by the plague, which has every chance of breaking out in a dirty town exposed to a violent sun. Brusa (60,000), the ancient Prusa, near the south shore of the Sea of Marmora, is an industrial town situated in a beautiful district at the foot of the forest-clad and snow-capt Mount Olympus. During a large part of the fourteenth century it

was the capital of the Ottoman Empire, and till 1855, when the town was destroyed by earthquakes, it boasted of the numerous palaces and mosques with which it was adorned during this period. Trebizonde (Turkish *Tirabzon;* 60,000), the ancient Trapezus, on the north coast, is an important commercial entrepot between Europe and Persia and Central Asia, though eclipsed now by Poti in Transcaucasia. Kaisarieh (60,000), the ancient Cæsarea, at the foot of the Ardjish-dagh, in the valley of the Kizil Irmak, is an important cotton mart and the seat of large fairs. Erzerum (60,000), *Arx Romanorum*, the *Garem* of the Armenians, is the principal town in Turkish Armenia, and is situated near



Trebizonde, from the Black Sea.

the sources of the Euphrates, at the height of 6100 feet above sea-level. Diarbekir, or Amid (60,000), is a strongly fortified place on the right bank of the Tigris; is the seat of a considerable transit trade between Bagdad and Aleppo, and has manufactures of silks, cottons, morocco, and other articles. Mosul (40,000), lower down on the same bank of the Tigris, near the ruins of ancient Nineveh, lying in a fertile district and enjoying a temperate climate, is another important seat of commerce and manufactures, though greatly declined from what it was at one time. It has given its name to the fabric called *muslin*, which, according to Marco Polo, was first manufactured here. Still further down on the same river stands the decayed city of Bagdad, the scene of the Arabian Nights Entertainments, for five hundred years the capital of the Abasside caliphs and the centre of the Arabian empire, and for a great part of this period an important seat of arts, science, literature, and philosophy. In the time of its greatest glory it is estimated to have numbered perhaps two millions of inhabitants, living in

splendid streets amidst beautiful gardens; at the present day, though still one of the chief centres of trade between Persia, Central Asia and India, on the one hand, and Turkey and Arabia on the other hand, it is estimated to contain a population of only 40,000 crowded together in crooked lanes. Aleppo (70,000), situated at an equal distance from the Mediterranean and the Euphrates on the shortest route between the two, is a charming town surrounded by verdure, and was long known as the Queen of the East. Its prosperity, however, received a great blow from the earthquake by which it was partly destroyed in 1822, and has been even more seriously affected by the introduction of European manufactures which have quite ruined its once flourishing industries. At the height of 2500 feet above the sea, at the foot of Anti-Lebanon, and in the immediate vicinity of the desert, stands Damascus (150,000), the principal town in Syria, and supposed to be the most ancient city in the world. Its appearance, when it first opens on the view, has been spoken of by all travellers in all ages in the most rapturous terms; and its environs, watered by the "lucid streams" of Abana and Pharpar, are described by the Arab geographer Abulfeda (who to be sure was a native of Damascus) as forming the first of the four terrestrial paradises. For nearly a hundred years it was the seat of the Arab caliphs, after they had quitted Medina and before they had transferred their capital to Bagdad. At the present day it is a town with a circumference of six miles, surrounded by a dilapidated wall. It no longer manufactures the steel blades for which it was once famous, but it still carries on the manufacture of silk goods, and maintains a brisk commerce with the coast. The chief town and port on the Syrian coast is Beyrouth (60,000 to 70,000), about 100 miles from Damascus, in the midst of shifting sandy downs. The only other Syrian town that need be mentioned is Jerusalem, and that solely on account of its importance in the history of the world. Situated in a region now arid and desolate, at the distance of about thirty miles from the Mediterranean and fifteen from the Dead Sea, and at the height of about 2500 feet above the former, and 3800 above the latter, it stands encompassed by high walls, on the summit of a few hills overlooking the brook Kidron, presenting to view amidst ruins the Church of the Holy Sepulchre surrounded by Latin, Greek, and Armenian convents on Mount Calvary, and the Mosque of Omar, on the site of the temple of Solomon on Mount Moriah; and, possessing neither commerce nor industry, owes all the animation it can boast of to the visits of pilgrims to the holy places. Among the Arabs it is known as *El Kouds*, "the Holy." The population is estimated at about 28,000. The following may be mentioned as among the principal ancient towns not already mentioned that still exist under different or modified names in Turkey in Asia:—Cotyæum, now Koutayeh; Ancyra, Ankara (Angora); Pergamum, Bergama; Nicomedia, Ismid; Magnesia, Manissa; Iconium, Konieh; Laodicea, Latakieh; Antioch, Antakieh; Tarsus, Tersus or Tarsus.

HISTORICAL SKETCH AND REMAINS OF ANTIQUITY.—Historically no region in the world is of greater interest than the territory comprised in Turkey in Asia. No territory of equal extent has seen the rise and fall of so many great empires, none has been the theatre of more important events. At least

two thousand years before Christ the Tigris and Euphrates had upon their banks two cities, Nineveh and Babylon, which each in turn became the capital of a great empire, and which at the time of their greatest splendour were probably of greater size and magnificence than any other cities the world has ever contained. In course of time both cities disappeared entirely, and it is only in quite modern times that their ruins have again been brought to light; those of Nineveh, by the excavations of Layard, Burnouf, George Smith, and others in the present century, at Koyunjik opposite Mosul, and those of Babylon at Hillah, where they have been visited on many occasions since the sixteenth century. In the eighth century B.C. Assyria on the right bank of the Tigris, with Nineveh for its capital, was the dominant empire in this region; and towards the

Koutayeh (the ancient Cotyæum), at the foot of the Poorsal Tagh, 4000 feet above the sea.

end of that century the Assyrians conquered Syria and the Kingdom of Israel, and took the Israelites captive. At the close of the following century, however, Nineveh was taken by the Babylonians, who shortly after put an end to the Kingdom of Judæa and took the people of that kingdom captive. In 538 B.C. Babylon was taken and the Babylonian Empire destroyed by the Persian king Cyrus, who, by his victory over Crœsus, King of Lydia, and those of himself and his generals over the Lycians and Cilicians in the south, had previously extended the boundaries of the Persian Empire to the west coast of Asia Minor. Of the three states last mentioned the capitals were Sardes, Xanthus, and Tarsus, of which Tarsus, the birthplace of St. Paul, is still a place of some importance, while Sardes and Xanthus are in ruins. The remains of Sardes are spread over a large surface on a plain near the Sarabat (Hermus), but present few objects of importance, the site being now a melancholy scene of desolation. Those of Xanthus, on the other hand, are of extreme interest, and have been explored in recent times by Sir C. Fellowes and his coadjutors, who transferred many of their discoveries to the British Museum. Previously to the conquest of Cyrus the coast of Asia Minor had been studded with numerous Greek colonies, the seats of commerce

and the arts, some of which still exist, while others are represented only by remains. The most important of these were Smyrna, Miletus, Ephesus, and Halicarnassus on the west coast, and Trapezus, Cerasus, and Sinope on the north coast. Of the Greek remains of these cities the most interesting are those of Ephesus near the mouth of the Kara-Su (the ancient Cayster). The site of this city, and also those of Miletus and a number of other ancient Greek colonies at the mouth of the Menderes (ancient Meander), are now no longer on the coast in consequence of the silting up of the mouths of the rivers on which they stand.

The Persian Empire founded by Cyrus subsisted till 331 B.C., when it was overthrown by Alexander the Great, under whose successors the Asiatic dominions of his empire were divided. The most important of these kingdoms founded on the ruins of the Alexandrian monarchy was that of the Seleucid kings of Syria, which embraced besides Northern Syria, Mesopotamia, and a large part of Asia Minor. Its principal town, Seleucia, situated on the right bank of the Tigris, a few miles below the more modern city of Bagdad, grew to be a place of upwards of half a million of inhabitants, but after the third century A.D. completely disappeared. The Romans first gained a footing in Asia Minor in 130 B.C., when the bequest of Attalus, King of Pergamus, conferred on them the western part of this peninsula (Mysia, Lydia, Caria, and Phrygia), and gradually their dominions in Asia extended until in the time of Trajan they included the whole of what is now subject to Turkish rule. The principal remains of the Roman period in the Turkish empire are the fine ruins of Heliopolis (Baalbek) in Coele-Syria, and Palmyra (Tadmor), which in the third century A.D. was for a short time under Odenathus and Zenobia the seat of an independent government. In the east the Roman dominion was very shifting and insecure, and for the most part this portion of the empire remained independent, under the kings of Armenia, Parthia (B.C. 250–226 A.D.), and Persia (after 226 A.D.). Of the Parthian kingdom the winter capital was Ctesiphon, on the Tigris opposite Seleucia, and some remains belonging to it still survive. In the seventh century Syria was wrested from the Eastern Roman Empire by the Arabs, who soon after conquered Mesopotamia and the region to the north. In the eleventh century the Arabs were succeeded by the Seljuk dynasty of the Turks, who in the time of the Crusaders (eleventh to the thirteenth century) bore rule over the greater part of Asia Minor (the sultanate of Iconium), as well as in Syria. Mongol invaders overran a large part of the territory in the twelfth and thirteenth centuries, and at the end of the latter century, after the withdrawal of the Mongols, Osman the founder of the present Turkish dynasty made himself master of the sultanate of Iconium, which soon embraced the whole of Asia Minor. Syria, and Palestine (from about 1250 in the hands of the Mamelukes of Egypt) were conquered by the Turks along with Arabia and Egypt itself in 1517; in 1522 Western Armenia also fell into their hands, and a few years later the whole of Mesopotamia.

SAMOS or Samo is an island off the west coast of Asia Minor forming a principality tributary to Turkey. It is traversed by two mountain ranges,

mostly rocky and barren; but the valleys are generally well-watered and fertile, present much beautiful scenery, and produce corn, almonds, pomegranates, muscadine wine, oil, cotton, and silk. White marble is obtained in great abundance, as most of the rocks are composed of it. The principal towns are Vathi and Cora, the latter being the capital, and occupying part of the site of the celebrated ancient city of Samos, the seat of King Polycrates, and the birthplace of Pythagoras. On Cape Colonna, the most southerly promontory of the island, once stood a famous temple of Hēra (Minerva), a column of which still remains to mark its site. The island was erected into a principality in 1832. Area of the island 212 square miles; population (chiefly Greeks) 37,000, or about 175 to the square mile.

ARABIA.

Arabia, the south-westernmost part of Asia, is called by the natives Jezíret el Arab, that is, the island of the Arabs. It is encompassed on all sides except the north by the sea, namely, on the north-east by the Persian Gulf, on the south-east by the Indian Ocean, and on the south-west by the Red Sea; and on the north a line drawn from the head of the Gulf of Suez to that of the Persian Gulf, and running nearly in the 30th parallel of north latitude, marks the limit of the peninsula, but a portion of what is considered Arabia extends still further north. The whole area of the vast country thus described is about 1,220,000 square miles, or about nine and a half times that of the British Islands.

DIVISIONS.—The division anciently made by Ptolemy into Arabia Petræa (that is, not Stony Arabia, as it has often been translated, but Arabia belonging to the once flourishing city of Petra), Arabia Deserta, and Arabia Felix, a mode of division long retained by subsequent geographers, is now generally abandoned as unsatisfactory.

The Turkish territory on the west coast forms the two vilayets of Hejaz and Yemen, the former, Hejaz, extending to about lat. 18° N., the latter extending from this point to the south-east coast. On the east side the inhabitants of El-Hasa (less properly El-Ahsa) have voluntarily placed themselves under the authority of Turkey, and their territory now forms a sanjak of the vilayet of Basra. Appertaining to Yemen is Aden, now a free port in the hands of the British. Next Yemen, on the east, is Hadramaut, and beyond Hadramaut (sometimes included within it) Mahrah, beyond which the principality of Oman occupies the whole of the maritime district round to El-Hasa. The interior of Arabia, from Hejaz and Yemen across to the vicinity of the Persian Gulf, is comprised, by Arab geographers, under the single name of Nejd. The total area of the Turkish portion of Arabia is about 250,000 square miles, and the population roughly estimated at about 1,300,000. Of the independent portion the dominion of the Wahabees in the interior is estimated to comprise an area of about 202,000 square miles, with a population of about 1,133,000; and the

sultanate of Oman to have an area of about 81,250 square miles and a population of about 1,598,000.

PHYSICAL FEATURES.—Round the whole coast of Arabia there is a narrow strip of low-lying flat land, only interrupted at a few points where the mountains sink directly down to the sea. The highest elevation in the peninsula is the line of mountains that stretches along the whole of the west coast parallel to the Red Sea, and which has a mean height of upwards of 6500 feet. Towards the interior the surface slopes gently down, but rises again in Oman to a considerable height. It likewise sinks towards the north in the direction of the Tigris and Euphrates valley, from which it is separated by the Syrian desert. The district of Nejd, in the northern half of Arabia, appears to be inclosed on all sides by mountains in the form of a square. The most detached portions of the mountain system of Arabia occur respectively in the south-east and south-west of the peninsula, in the former of which, in Oman, the range of the Jebel Akhdar and the valley of the Masara form the same contrast with the uniform undulations of the great inland desert as the mountain territory of Yemen, in the latter, with the river Meidan, discharging itself into the Indian Ocean at Aden, does with the barren coast tract of Tehama, west of the mountains of Yemen. The peninsula of Sinai is a bare rocky district having in its centre the famous mountain group, from one of the peaks in which it gets its name, and elsewhere intersected by long, narrow defiles, the chief of which is the desolate gully called the "ghowr," a continuation of the Dead Sea hollow.

CLIMATE.—The climate of Arabia resembles that of Africa. The mountains obstruct the mitigating influence of the sea-breeze; scorching aridity and barrenness characterize both high and low grounds, and the date palm is often the only representative of vegetable existence. There are even districts which in the course of the year are refreshed by only one shower of rain, while a sky almost perpetually unclouded overspreads the sterile plains. The short rainy season, which, on the west coast, occurs between June and September, on the east between December and March, a consequence of the monsoons, which regulate the climate of southern Arabia, fills with water, but only periodically, the *wadis* or depressions in the surface. And even in Yemen the regular recurrence of this season cannot be depended on, and it sometimes happens that no rain falls for a succession of years. A winter marked by slight frosts occurs in the table-lands of the interior and north-east. The simoom occasionally blows during the hot season, though only in the northern districts. Yet the climate is on the whole healthy, and few nations in the world suffer so little from disease as the Arabs, a consequence no doubt of their temperance as well as of the salubrity of their climate.

PRODUCTIONS.—Arabia is destitute of large forests, but possesses extensive steppe-like tracts, covered with aromatic herbs, affording excellent pasture to noble breeds of horses. The terrace portions of the country, which enjoy a more temperate climate, exhibit a greater luxuriance of vegetation. Here the acacia, and the date and cocoa-nut palms, besides various excellent sorts of fruit flourish along with durra (a species of millet which is here generally cultivated instead of

European corn), the finest coffee in the world, and many aromatic plants and substances, such as gum-arabic, benzoin, mastic, balsam, aloes, myrrh, frankincense, &c. There are also cultivated in different parts of the peninsula, according to the nature of the soil and climate, beans, rice, lentils, tobacco, melons, saffron, colocynths, poppies, olives, the kâth bush (*Catha* or *Celastrus edulis*), the leaves of which are in general use, like those of the coca in Peru, as an excitant, sesame, the castor-oil plant, &c. In its fauna also, as corresponding with the desert nature of the country, Arabia presents much of an African type. Sheep, goats, and oxen supply man's immediate domestic and personal wants; the horse and camel are his faithful attendants on his wide peregrinations; asses and mules, of a stronger make and better appearance than those of Europe, are common in the mountainous districts. The desert is inhabited by gazelles and ostriches hurrying rapidly from oasis to oasis; and the lion, panther, hyena, and jackal

Travelling in Arabia.

crouch in ambush for the passing prey. Monkeys, pheasants, and doves are the peaceful occupants of the fertile districts, in which, however, locusts frequently commit tremendous havoc. There are several species of serpents and lizards, and scorpions and poisonous spiders are numerous. Fish and turtles abound on the coasts, and pearl oysters in the Persian Gulf, from the Bahrein Islands eastwards and southwards for a distance of two hundred miles. Among mineral products may be mentioned saltpetre, mineral pitch, and petroleum, which are found in the interior highlands, salt, sulphur (in Hadramaut), and several precious stones, as the carnelian, agate, and onyx. Iron, copper, and lead are far from abundant, and the country is also poor in the precious metals.

PEOPLE, LANGUAGE, RELIGION, &c.—The population of Arabia has been estimated by some at 12,000,000, by others at no more than 4,000,000. The former number is certainly too high, and it is believed that between 5,000,000 and 6,000,000 is near the truth. The evidence of language, tradition, and other things establishes the fact that Arabia must have been settled at a very early date by two branches of one race. One of these branches inhabits the south and east of the peninsula (Yemen, Hadramaut, and Oman), and considers itself as forming the "pure Arabs," while to the other branch it gives the name of *Mostareb* or "Arabified." The oldest traditions regarding the origin of the former branch point to an immigration from Africa, which took place about the

south-western corner of the peninsula, and the physical appearance and structure of the southern Arabs, the remnants of their dialect (which is now superseded by that of the northern branch), and various institutions and customs prevailing in the parts of Arabia inhabited by them, all confirm the notion that they were originally identical with the nearest inhabitants of Africa. The northern branch, on the other hand, although bearing an unmistakable affinity with the southern, shows (in its language and other respects) more traces of Asiatic than African influence. The Arabs present, as a nation and as individuals, much that is peculiar both in their mental and physical development. They are of middle stature, and have a skin of a brownish colour. Their features express dignity and pride; they are naturally active, intelligent, and courteous; and their character is marked by temperance, bravery, and hospitality, along with a strong propensity for poetry. On the other hand, they are revengeful in their disposition and predatory in their habits.

The first religion of the Arabs, the worship of the stars, was supplanted by Mohammedanism, the religion taught by Mohammed in the first half of the seventh century of the Christian era, a religion largely borrowed from Judaism, partly also from Christianity, but containing important elements derived from old Arabic customs and beliefs. By the Mohammedans themselves it is called Islam, that is, "submission to the will of God." The fundamental points of the religion are summarized under two divisions, one containing its theoretical or dogmatical part (the *Iman*), and the other the practical part (*Din*). The former embraces six principal articles of faith. The first two are that there is only one God, and Mohammed is his prophet; the third asserts the Koran, in which Mohammed's doctrines are contained, to be the only pure revelation from God; the fourth asserts the existence of angels and a lower grade of good and evil spirits (Jinn, genii); the fifth demands belief in the unconditional and unchangeable decrees of God; and the sixth teaches the doctrine of the resurrection of the dead, the union of the soul and body after death, the last judgment, and the damnation of unbelievers. The practical part of the religion inculcates five supreme duties. These are, first, the cultivation of faith by the reading of the Koran; second, prayer, repeated five times a day with preparatory purifications, the face being turned during prayer towards Mecca, the sacred city of the Arabs and the birthplace of Mohammed; third, almsgiving; fourth, fasting on certain stated occasions; fifth, making a pilgrimage to Mecca at least once in one's life. The last two of these paramount duties inculcated by the Mohammedan religion are ancient Arabic institutions. Fasting during the month of Ramadhan or Ramazan was traditional among the Arabs, and Mohammed adopted the tradition and imposed it on his followers as a duty. The period of fasting is from sunrise to sunset every day in the month. Besides these five chief commands the Mohammedan religion contains a long series of prohibitions, among which the most important are the prohibition of the drinking of wine, of gaming, of the eating of the flesh of swine or strangled cattle, of the taking of interest, of soothsaying and the employment of certain formulas of enchantment. Polygamy is allowed in accordance with the customs of the people to whom the religion

was first preached. Like the Jewish Scriptures the Koran contains besides religious doctrines a complete system of government, law, and police, and it is in this and the historical part of the Mohammedan Scriptures that the borrowings from Judaism are most apparent. The Mohammedan year is lunar (354 days), and the era from which their years are reckoned is the Hejra, or flight of Mohammed from Mecca to Medina in 622 A.D.

The new religion was spread by Mohammed by means of the sword, and before the death of its founder had obtained a firm hold in the land of its birth. Since then it has spread over a large part of Africa and Asia, but in Europe is professed only by the Turks and a comparatively small fraction of the inhabitants of European Russia. At the present day its adherents are estimated to number altogether upwards of 200,000,000, or about one-seventh part of the population of the globe. They are divided into many sects, but the great schism was that which led early in the history of Mohammedanism to the formation of the sects of Sunnites and Shiites. The latter, who include few besides the Persian Mohammedans, recognize Ali, the son-in-law of Mohammed, as the first and only legitimate successor of Mohammed himself, and accordingly acknowledge no authority in the present caliphs (the sultans of Turkey), and at the same time they reject many of the traditions of the Sunna, which are regarded by the Sunnites as of almost equal weight with the Koran itself.

In Arabia besides the two principal sects of Islam, the Sunnites (the most numerous) and the Shiites (on the east coast), there also exists in considerable numbers a third sect, the Wahabi, which arose in the latter half of the eighteenth century, and to which the Beduins of Nejd belong. Its founder, Abd-el-Wahab, was an oriental scholar of high attainments, who deemed it his mission not to teach a new religion, but to purge the old faith of the errors and corruptions that had crept into it, and to revive the doctrines and observances of the Koran and the Sunna. He inveighed against the idolatrous veneration of the prophet and other saints, denying the intercession of saints altogether, and was an enemy to the decorations of the mosques and the rich dresses worn by the Turks. All who should oppose this reformation were to be destroyed by fire and sword. According to Palgrave the territory of the Wahabis contains a population of 1,219,000, and a fighting force of 47,300 men.

The mode of life of the Arabs is either nomadic or settled. The nomadic tribes of Arabia are termed Bedouins, Beduins, or Bedawins; those following settled occupations, Hadji, who either live in towns in the pursuit of trade (very seldom as mechanics), or are tillers of the soil (fellahs). Commerce is partly in the hands of foreigners, among whom the Jews and Banyans are the most numerous. The latter are a tribe of Indian merchants, who, however, only remain long enough in the country to enable them to return with wealth to their own land. Commerce on a large scale is little pursued by the Arabs proper, since the prohibition in the Koran of the taking of interest tends to prevent the accumulation of the capital necessary for this. In Oman, however, where the injunctions of the Koran in this particular are less strictly observed, there are a good many large Arab merchants. The keeping of slaves is generally practised

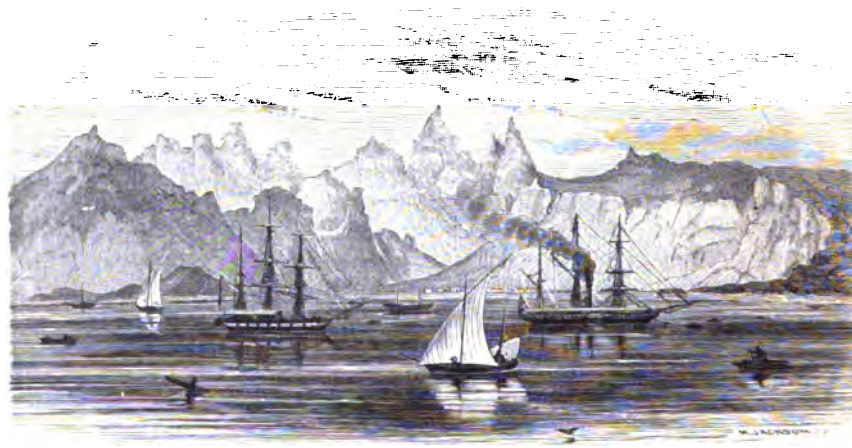
throughout Arabia. The slaves are mostly obtained from Africa, from the maritime districts extending as far south as Zanzibar, and are usually employed as herdsmen and domestic servants. In general they are well treated, and when they adopt Mohammedanism (as they usually do), it is the custom not only to liberate them at the end of seven years, but to furnish the liberated slave with the means of supporting a family. To this cause Arabia owes the existence of a free black population, or a population betraying an admixture of African blood, a population interspersed among the Arabians proper in every part of the peninsula, but more especially in the south and east. The period of intellectual development among the Arabs is now indeed long past its zenith, but it does not appear yet to have sunk so low as is often assumed. Even in the desert, though there are no schools, male Arab children are usually taught in the tents of their parents to read and write. In the towns the law and theology of the Koran are taught in afternoon lectures in the mosques.

Arabs pitching a Tent.

The political constitution of the Arabs is patriarchal, and is based on a love of freedom. Throughout Arabia, even in the Turkish portion of it, there are native chiefs having the title of sheikh, emir, or imam, sometimes that of sultan. Among the nomad Arabs every little tribe, and among the settled Arabs every village has its sheikh or "elder," who is chosen by the people of the tribe or village according to no fixed rule, but chiefly in recognition of the influence he is likely to exert in consequence of his wealth, liberality, ability, or other personal qualification; and his authority is almost confined to the exercise of that influence. Both in peace and war he is consulted on all matters in which the welfare of the tribe is concerned, and has all disputes referred to him, but his advice or opinion is not necessarily taken. He has no revenue as sheikh, and in this respect his position differs from that of an emir or imam, whose rule extends over a district or province, and who derives a revenue from the province he governs, often in the form of a tax proportioned to the value of the property of the people of the province, sometimes in the form of fines, customs duties, &c. The authority of an emir or imam differs little in kind from that of a sheikh, and his position, though not hereditary by any fixed rule or prescriptive custom, any more than a sheikh's is, often

is so in practice. The title of sultan is assumed by various Arab chiefs whose position is in no way different from that of an emir, and among others is often conferred on the governor of Oman, who is more usually styled the Imam of Muscat.

CHIEF TOWNS.—The most celebrated, as well as most probably the largest town in Arabia is Mecca, the cradle of Mohammedanism and the sacred city of the Mohammedans. It stands about sixty miles from the coast, in a sandy valley in the middle of a rocky desert without trees and without running waters. Its stationary population is estimated at about 45,000, but the city is large enough to hold four times that number, and is annually filled at the time of the Haj, when from 100,000 to 150,000 pilgrims from all Mohammedan countries come to visit the mosque called Beitu 'llah (house of God), or El-Haram (the inviolable), to encompass and enter the Kaaba, or sanctuary in this mosque towards which all



Aden, the anchorage from the North.

Mohammedans turn when engaged in prayer, to kiss the Kebla or sacred stone which is said to have been brought from heaven to Abraham by the angel Gabriel, and which is now set in one of the angles of the Kaaba, to climb the hill of Arafat where Mohammed used to pray, and to throw sixty-three stones at the devil in the valley of Muna, where Satan appeared to the first man. As in the case of similar religious gatherings commercial aims are combined with those of a more sacred character, and about 50,000 camels accompany the pilgrims to convey the merchandise that changes hands at Mecca at the time of the Haj. Prominent among the stationary population of Mecca are many of the shereefs or direct descendants of Mohammed, who are now scattered over all Mohammedan countries, and in most of these (though not in Arabia) wear a green turban as a mark of distinction. In Mecca the local governor is selected from their number, the choice being confirmed by the Ottoman sultan. Jidda, the port of Mecca, has an estimated population of 20,000. Medina (about 20,000), lying about 230 miles due north of Mecca, is another sacred city of the Mohammedans, being the place

where the founder of their faith was born in 571. Sana, the clean and beautiful capital of Yemen, a town said to have formerly contained 200,000 inhabitants, is described by recent travellers as being to a large extent in ruins and possessing a population not exceeding 40,000, perhaps only half that number. Muscat, the capital of Oman, a busy port with a safe achorage, has a population estimated at from 15,000 to 20,000.

ADEN is a town on the south-west coast of Arabia, in the possession of the British. It is situated in the crater of an extinct submarine volcano, and almost entirely closed in by an amphitheatre of dark rocks, which give it a wild and sombre aspect. It is strongly fortified and permanently garrisoned, and possessing an admirable harbour is now the principal port in Arabia, being visited regularly by the steamers of the Peninsular and Oriental company, as well as those of the French Messageries Maritimes. Aden was a Roman colony and a celebrated fortress in the time of the Emperor Constantine. In 1839 it was purchased from the Arab sheikh to whom it belonged by the East India Company, but had to be wrested from the son of the sheikh by force. It is now a dependency of the Presidency of Bombay. Pop. in 1871, 29,730.

PERIM, a small volcanic island at the mouth of the Red Sea, has been occupied and garrisoned by the British since 1857.

PERSIA.

Persia (Persian, *Iran*), is a kingdom of Western Asia of compact form lying to the east of Turkey in Asia. It is divided into the provinces and districts of Azerbijan, Ghilan, Mazanderan, Astrabad, Ardelan, Irak-Ajemi, Khorasan, Khuzistan, Farsistan, Luristan, Kerman, Laristan, and Kohistan, together with part of Seistan, the remainder of which belongs to Afghanistan, and part of Mekran, the remainder of which belongs to Beluchistan; total area, 636,000 square miles; estimated population 7,000,000, or about 11 to the square mile.

GENERAL FEATURES.—Persia belongs to the vast and elevated table-land which, commencing in the west on the eastern frontiers of Asiatic Turkey, stretches east without interruption into Afghanistan, and thence to the borders of India. The west part of this table-land forms the far larger portion of the Persian dominions. To the east, where it is only politically separated from Afghanistan, Persia does not possess any natural boundaries; but it has its limits in other directions well defined by lofty mountain ranges, which descend with more or less rapidity, on the north towards Transcaucasia, the Caspian Sea, and the Turkoman desert, on the west towards the plains of the Tigris and Euphrates, and on the south towards the Persian Gulf. Persia may thus be described in general terms, as consisting of an extensive central plateau, occupying at least three-fourths of the whole surface; a series of mountain chains encircling the plateau on all sides except the east; and an outer border, of more or less width, consisting for the most part of gentle slopes, low valleys, and

level plains. The east part of the plateau forms the great deserts of Khorasan and Kerman, and is one of the most desolate regions of the globe. Towards the west the plateau improves in appearance. Saline incrustations are there of less frequent occurrence; the quality of the soil improves, and the surface, being more diversified and more broken by lofty heights, obtains more moisture, and can be successfully cultivated. The northern mountain chain, spreading in some parts over a region 200 miles wide, though in general much narrower, attains its highest elevation immediately to the south of the Caspian (the Elburz Mountains), where it culminates in Mount Demavend, 18,460 feet high. The mountains of Ararat, situated as a common property on the borders of Russia, Persia, and Turkey, form the common link by which the north and the west ranges of Persia are united. The latter, commencing in the north-west, in the mountains of Kurdistan, is continued south in a broad and elevated belt till it reaches lat. 34° N.; then it changes its direction to south-east, and spreads out and forms several separate ranges. One of these, proceeding east between the provinces of Farsistan and Laristan, and across the province of Kerman, forms the south range, separating the great plateau from the shores of the Persian Gulf. It is more remarkable for its length and width than for its elevation, which apparently never rises above 1000 feet higher than the plateau forming its base.

Considering the extent of Persia, its **rivers** are both few in number and insignificant. Not one of them is of any navigable importance, except the Aras on the borders of Persia and Transcaucasia, and the Shat-el-Arab, a portion of which touches the Persian frontier in the south-west. From the mouth of the Karun or Kuren, one of the arms of which flows into the Shat-el-Arab, the Persian Gulf does not receive a single stream deserving of notice. The streams which flow northwards into the Caspian are, likewise, all inconsiderable, except the Kizil-Uzen or Sefid Rud (White River), which, rising in the mountains of Kurdistan, finally works its course to the Caspian across the Elburz, at the celebrated Rudbar Pass, after a course of about 350 miles. Almost all the fresh-water **lakes** which Persia possesses are situated in the province of Mazanderan. They are numerous, though individually of limited extent. The salt lakes, on the contrary, are few in number, but remarkable for their magnitude. The principal are Bakhtegan or Niriz, in the east of the province of Farsistan, and Shahee or Urumiyah, in the west of the province of Azerbijan, the latter of which is so salt that no fish can live in it. The great salt swamp of Hamun Zurrah is now partly in Persia, partly in Afghanistan and Beluchistan.

GEOLOGY AND MINERALS.—The geological structure of Persia has not yet been carefully and completely explored. Granite and crystalline schists form great part of the mountains which extend from Laristan east across the south of Kerman into Beluchistan. The same rocks are more largely developed in the mountain ranges of the north, where, besides forming the nucleus of the principal axis, they cover a considerable width, both on the north and on the south slopes and along the base. The only remarkable interruption to the continuity of the granites and schists of the north is in the chain of the Elburz, in which the

effects of remote volcanic agency are strongly manifested. The rocks which bound the alluvial plain of Lake Urumiyah on the west are also volcanic. The most celebrated of the mineral products of Persia is the turquoise, the most valuable mines of which, producing gems of surpassing beauty and in considerable quantities, are in the vicinity of Nishapur, to the west of Meshed. Among the metals, iron, argentiferous lead, copper, cobalt, arsenic, and antimony are said to be abundant, though they have not yet been turned to much account. Extensive deposits of good coal exist in the neighbourhood of Teheran, and of lignite near Tabreez, but both of these also lie still unutilized. Rock-salt may be obtained in unlimited quantities in almost every quarter, and sulphur is dug almost solid from the crumbling cone of Mount Demavend. Naphtha is found in many places; a celebrated gum or bitumen, called *mumea*, is collected in Farsistan. Marble of the finest quality is quarried in Azerbijan.

CLIMATE.—The extremes of heat and cold are most sensibly felt on the central plateau, where the winter is as rigorous as the summer is hot. The dryness of the atmosphere, however, makes the air generally pure and the sky cloudless. The shores of the Persian Gulf are scorched up in summer by a burning heat, and become so unhealthy that all the inhabitants who have the means abandon them, and retire to the adjacent mountains. In such situations as at Teheran at the south base of the mountains of Elburz ice is seen up to the middle of March; cold winds from the north prevail in April, and even during summer great and sudden changes of temperature are not uncommon. Further south, at Ispahan and Shiraz, on the other hand, the variations in climate are moderate and regular. On the northern side of the mountains, in the plains of Ghilan and Mazanderan, the climate is like that of a tropical region, in which a dry and a rainy season regularly alternate, and vegetation has a luxuriance not often met with in much lower latitudes.

VEGETATION, AGRICULTURE, ZOOLOGY, &c.—The general barrenness of the interior of Persia, particularly in its eastern and southern regions, has already been referred to. The long belt of sandy shores which line the Persian Gulf is nearly as barren as the desert table-land, but is often interspersed with plantations of date-trees, which here find a genial climate and grow to great perfection. Among the mountains in the south-west forests of oak and other trees are not uncommon, though in general they are stunted in their growth, and degenerate into a low jungle. The only true forest-land of Persia is the north side of the lofty ranges which overlook the Caspian. There all the mountain sides are covered with dense and magnificent woods of oak, beech, elm, and walnut, intermingled with box-trees, cypresses, and cedars. Lower down, though still at some thousand feet above sea-level, wheat and barley are extensively cultivated. In the level and rich plains below, vegetation of every kind is remarkably luxuriant. The sugar-cane and orange come to perfection, and are common; the pomegranate grows wild, the cotton-plant and mulberry are extensively and successfully cultivated, large tracts are occupied by the vine, and orchards, loaded with exquisite fruits, occur in every quarter. The melons of Ispahan are said to be the finest, those of Gurgab the largest in the world. Even the swampy shores

of the Caspian are covered with a tall growth of saline plants and canes, available for building and many other domestic purposes. In these low plains the only grain under extensive and regular culture is rice; and the principal subsidiary crops are cotton, indigo, sugar, madder, and tobacco. Among the other vegetable products of Persia are gum-tragacanth, asafœtida (produced in great quantity near Turshiz and round Herat), yellow-berries, saffron, liquorice (which covers the plains of Merdasht and those round Shiraz), gum-ammoniac, and opium (cultivated since about 1860 by order of the government in every part of Persia). Irrigation is well understood and extensively practised, and on lands apparently of no great fertility good returns are by this means obtained. Persian cattle are generally inferior, though black cattle, of great size and beauty, distinguished by the Indian hump, are not uncommon in Mazanderan. Sheep and goats are much more numerous. The latter, particularly in the province of Kerman, yield a wool little inferior to that of Kashmír. The other domestic animals are asses, generally of a large and superior description; mules, remarkably strong, hardy, and sure-footed, and used more than any other animal for transport; horses, much improved by crossing with those of Arabia, and famous for strength, speed, and beauty; and camels. Predatory animals include lions, tigers (both rare), leopards, wolves, jackals, hyenas, foxes, wild boars, and among other wild animals are a fine strong breed of sheep, mountain goats, wild asses (which are very abundant, very shy, and swifter than horses), and antelopes and stags in great variety. Among birds the most celebrated is the bulbul or eastern nightingale. Among destructive insects the locust is noted for the fearful ravages which it often commits. Fish abound only in the Caspian and on the shores of the Persian Gulf. At the mouths of the streams which fall into the former valuable sturgeon fisheries are carried on. Elsewhere the rivers contain few fish; and Urumiyah, the largest of the lakes, is wholly destitute of them.

Mosque of the Sultan Hussein, Ispahan.

MANUFACTURES, TRADE, AND COMMUNICATIONS.—The manufactures

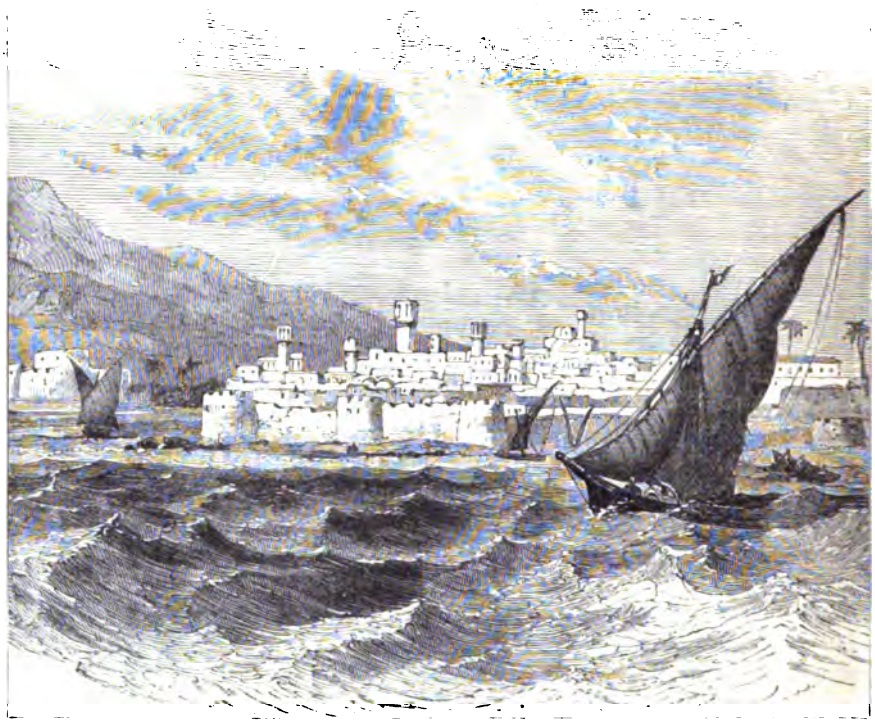
of Persia are more numerous than important, though in a few articles they continue to retain some of the celebrity which they acquired in early times. Among them may be mentioned various kinds of silk goods, as taffetas, velvets, and brocades, made extensively at Ispahan, Kashan, Astrabad, and Yezd; carpets and felts in Khorasan and many of the central districts of Irak-Ajemi; shawls, in imitation of those of Kashmír, made of the fine wool of the goats of Kerman; the firearms of Kermanshah; the swords, daggers, and other cutlery of Ispahan, Shiraz, and Meshed; the copperware of Kashan, the gold brocades of Ispahan. The internal trade is almost entirely carried on by caravans. Tabreez is the chief seat of the Persian commerce, being the emporium for the productions of Northern India, Samarkand, Bokhara, Cabul, and Beluchistan. European merchandise reaches Tabreez by way of Constantinople and Trebizonde, being brought from the latter place by caravans. The roads are few and bad, and this state of matters is so great a hinderance to the internal trade that the country is

Travelling in Persia (Litter borne by Mules).

often visited by cruel famines. That of 1871–72 (in a great measure due to the order of the government requiring the general cultivation of opium) was one of the most terrible that have ever taken place, and greatly reduced the population in the chief centres, especially in the fertile province of Ghilan. The traffic of the Caspian Sea, carried on chiefly at the ports of Enzella, Balfrush, and Astrabad, is almost entirely monopolized by Russian subjects; that of the Persian Gulf, carried on chiefly at the port of Bushire, is mostly in the hands of Armenian, Arab, and Indian traders. Till recently the foreign commerce of Persia with Europe was carried on principally by way of Tabreez, Erzerum, and Trebizonde, whence the Persian exports were conveyed to their ultimate destination by sea. Since the construction of the railway from Poti to Tiflis, however, this commerce proceeds almost entirely by this route, Tabreez being still the centre from which it starts. Both the coasting and foreign trade of Persia are carried on chiefly in foreign vessels. The principal imports are British cotton fabrics and other manufactured articles, sugar, tea, raw iron, and copper; and the principal exports silk, opium, cotton, tobacco, carpets, shawls, skins, and dried fruits. In 1879 the French system of coinage was introduced into Persia, the franc being coined under the name of the *kran*, while a gold piece of the value of ten francs or krans is coined under the name of *toman*. Double and half tomans are also coined in gold.

PEOPLE, LANGUAGE, RELIGION.—The main element of the population is composed of Persians proper, who are the aboriginal inhabitants or earliest

settlers of the country, and inhabit chiefly the north-west and middle provinces. They form from two-thirds to three-fourths of the whole population. The remainder of the inhabitants are either more recent settlers or, like the Armenians in the extreme north-west, natives of districts over which the Persian rule was extended in comparatively recent times. The former are comprehended under the general name of Ilat or Iliyat, and are found chiefly on the interior plateau, on the eastern frontier and in the mountains of the west. They are mainly of



Bushire, from the Persian Gulf.

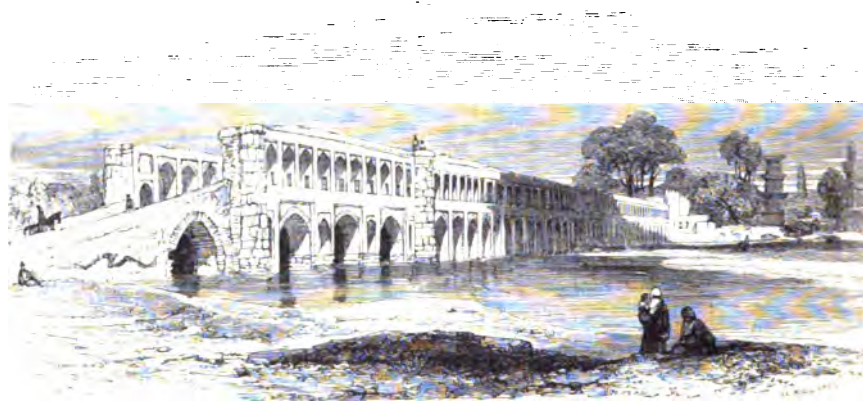
Tatar, Arab, and Lek origin, the Leks being a race closely allied to the Persians proper, and represented chiefly by the Kurds and Lures. To the Tatar Iliyats (who number in all about a million) belongs the small but important tribe of the Kajars, to which the present reigning family and the hereditary nobility of Persia belong. The Arabs are found chiefly in the south-west. Large numbers of the Iliyats are nomads, about 30 per cent of the entire population of Persia being estimated to be nomadic. Large numbers of Jews are scattered through all the towns. The Persians proper are still strongly marked by distinctive features. The complexion is fair, but the hair long and straight, except that of the beard, which is bushy, and almost invariably jet black. Their intellectual qualities are naturally of a high order, and enabled them at a very early period to take the

lead in civilization among eastern nations. They are remarkable for their politeness in social intercourse, whence they are often called the French of the East. On the other hand, they are crafty and deceitful. The Persian language belongs to the Iranian branch of the Indo-European family, and both in its oldest form, now called Old Bactrian, the language in which the Zendavesta was originally composed, and in its modern form Parsi, became the vehicle of a valuable literature. Parsi, which is remarkably simple in its grammar yet possessed of a great power of forming compound words, is spoken with considerable purity by the educated classes, but in the mouths of the uneducated contains a large admixture of Arabic words and phrases. The prevailing religion is the Mohammedan, to the Shiite sect of which most of the inhabitants of Persia belong. The Kurds are Sunnites, and there are also many adherents in Persia of the pantheistic sect of the Sufis. Of these latter there are two sections, one of which recognizes the Koran as the Word of God but gives an allegorical interpretation to much that it contains, while the other recognizes neither the Koran nor the prophet. Besides Mohammedans there are Armenians, Nestorians, Jews, &c.

GOVERNMENT AND ADMINISTRATION, &c.—The sovereign of Persia is an absolute and uncontrolled despot. The only practical limit to his power is that which is due to the immense influence of the higher clergy. The crown is hereditary in the direct line, but the king, who bears the title of *Shah-yn-shah* (king of kings), may choose which of his sons he pleases to succeed him. The provincial governors (having the title of *begler-beg* or *sardar*) are represented as being devoid of administrative capacity, and most oppressive to the people over whom they rule. Their tenure of office mainly depends on the sum they forward to the central treasury, and they are sometimes superseded by others who promise to furnish a greater amount. For the administration of justice there are two classes of courts—one called *Sherrah*, which decides according to the Koran, and the other called *Urf*, which decides according to customary law. Between the two the chance of justice to the subject is very small. The revenue is chiefly derived from land and poll-taxes, import and export duties, transit duties on telegrams, tributes from nomadic tribes.

CHIEF TOWNS.—The towns of Persia, which are usually entered by roads leading through the cemeteries, appear for the most part like heaps of ruins. Narrow filthy lanes wind between decayed earthen walls and old buildings, and high walls hide from view every spot of green and every dwelling-house of a better appearance. The houses are mostly built of brick, often merely sun-dried. Teheran, the capital of Persia since 1798, is situated on a saline plain about 10 miles from the foot of the Elburz chain and about 70 from the Caspian Sea, at the height of 3700 feet above sea-level. Its winter population is estimated at about 100,000; but in summer, when the heat, venomous insects, and the prevalence of intermittent fever make a residence in the town almost insupportable, the shah and the wealthier classes to the number of about 40,000 withdraw to tents at the entrance to the fresh valleys of the Elburz. Tabreez (about 100,000), in the province of Azerbijan, at the height of nearly 5000 feet above sea-level, is the centre of trade between Persia and Europe, and exhibits in its large

and small caravanserais all the wares coming from the north-west. It has telegraphic communication with Teheran, and is the seat of a university on the European model. At one time it contained a population of 550,000. Meshed (60,000), in the province of Khorasan, is for north-eastern Persia what Tabreez is for north-western Persia, the great seat of commerce with the neighbouring countries. It is said to be built on the site where the camel conveying the body of Ali, the son-in-law of Mohammed and the first legitimate caliph in the belief of the Shiites, remained standing in the desert, and in consequence of this Meshed is a great resort of Shiite pilgrims, for whom it has almost the same importance as Mecca has for the Sunnites. Ispahan (60,000), near the centre of Persia, at the height of 4600 feet above sea-level, is the old capital of the country, and was at one time one of the most important towns in the world, having a popu-



The Julfa Bridge, Ispahan.

lation estimated at about a million. Since its destruction by the Afghans in 1772, however, it has been in great part only a heap of ruins, so that one can walk for two or three miles within it without meeting any other creature than a fox or a jackal. In other parts, however, large palaces, mosques, bazaars, and bridges remain as a testimony to its former grandeur. Hamadan (30,000), about 230 miles north-west of Ispahan, occupies the site of the ancient Ecbatana, the capital of Media, and contains the tomb of the Arabian philosopher Avicenna (Ibn Sina), as well as, according to the Jewish legend, those of Esther and Mordecai. Shiraz (30,000), in Farsistan, celebrated for its delicious climate, its beautiful women, its splendid rose-gardens, and its rich wines (which last are grown, however, not here, but at the village of Khollar about 35 miles distant), was at one time a favourite residence of the caliphs, and under the Mongols was the principal seat of science and culture in Asia. It is the birth-place of the famous Persian poets Hafiz and Sadi. About 30 miles north-north-east of the town lie the ruins of the ancient Persepolis, the seat of the Achæmenidæ, the oldest dynasty of ancient Persia, and the burial-place of the Persian kings. About 45 miles further to the north-east, in the plain of Murghab,

are to be seen the remains of Pasargadæ, the city built by Cyrus and containing his tomb.

HISTORICAL SKETCH.—The nucleus of the ancient Kingdom of Persia was formed by the territory now belonging to the western part of Farsistan and the south-eastern part of Irak-Ajemi. In the sixth century B.C. this kingdom was subject to that of Media in the north of modern Persia, but about the middle of that century Media was overthrown by Cyrus who founded the Persian Empire which extended to the shores of the Mediterranean. In 331 B.C. this empire was destroyed by Alexander the Great, after whose death Persia fell into the hands of the Seleucid kings of Syria, from whom it passed about 236 B.C. under the domination of Parthia (the Arsacidæ). In 226 A.D. the Arsacidæ were overthrown in their turn by the Persian dynasty of the Sassanidæ, and Persia maintained its independence thenceforward till it was conquered by the Arabs in 651. For about 250 years it remained subject to the caliphs, but about the ninth century it became broken up into several kingdoms, and was not reunited till the beginning of the thirteenth century, when it fell for two centuries under the power of the Mongols, successors of Genghis Khan. Turkoman and other dynasties succeeded, till in the first half of last century the Persian rule was extended by Nadir Shah as far as India, and embraced also Georgia. On the death of Nadir Shah in 1747 his dominion broke up into four kingdoms—Khorasan, Farsistan, Kandahar, and Georgia. The first two were ultimately united and form the present Kingdom of Persia. The third was the foundation of the present Afghanistan, and Georgia fell in the end to Russia.

AFGHANISTAN.

Afghanistan, the land of the Afghans, is a country of a quadrangular shape, lying chiefly between Persia and India on the west and east, and Turkestan and Beluchistan on the north and south. The area is calculated to be 278,647 square miles, and the population estimated at 4,000,000, or about 15 to the square mile. After the Afghan war of 1878–79, the districts of Kurram, Pishin, and Sibi in the east and south-east were assigned by the treaty of Gandamak to the British, to be administered by the government of India, but not to be regarded as completely and definatively separated from the Afghan territory. No more territory was occupied after the campaign of the following year.

PHYSICAL FEATURES AND PRODUCTIONS.—Afghanistan consists chiefly of lofty, uninhabited table-lands, snow-covered mountains, and deep ravines and valleys. Many of the last are well watered and fertile, but about four-fifths of the whole surface is rocky, mountainous, and unproductive, and a large part of the remainder desert. The surface on the north-east is covered with lofty ranges belonging to the Hindu Kush, whose heights are often 18,000 and sometimes exceed 20,000 feet. The loftiest passes are about 12,000 feet, and the road often passes along the base of mural precipices rising from 2000 to 3000 feet. The

whole north-eastern portion of the country has a general elevation of over 6000 feet; but towards the south west, in which direction the principal mountain chains of the interior run, the country sinks down to not more than 1600 feet. The principal avenues of communication between Afghanistan and India are the famous Khyber Pass, to the south of the river Kabul entering the Panjáb; the Gomul Pass, also leading to the Panjáb a little to the north of lat. 32° N.; and the Bolan Pass on the south in Beluchistan, through which the route passes to Sind. Of the rivers, mostly in the centre of the country, the largest is the Helmund, which flows in a south-westerly direction more than 400 miles, till it enters the Hamoon or Seistan swamp, previous to which, however, its water is almost all drawn off by canals for irrigation. It receives the Arghandab, a considerable stream. The climate is extremely cold in the higher, and intensely hot in the lower regions. Agriculture is pursued wherever the nature of the soil and the presence of water admit of it; and, according to Captain Holdich, one of the survey officers in the recent Afghan campaigns, there are parts of the northern provinces "which have been transformed by the labour of centuries and by a skill in the science of agriculture and irrigation quite unequalled in India, into perfect gardens of beauty—narrow fields of fertility such as hardly even the plains of Lombardy can boast." "But it is from the mountain-tops alone," he adds, "that one becomes aware how narrow are these bright green ribbons of fertile beauty, winding and spreading here and there into broader plains amid the desolation of the hills, and the weary wildernesses of sand and rock." Irrigation water is obtained both from rivers and from what are called *karezes*—tunnels pierced in the base of the mountains till water is reached. In many parts two harvests are annually reaped, and in some, as round Kandahar, even more. The principal crops are wheat, forming the staple food of the people; barley, given to horses; pease and beans, rice, maize, and several of the grains of Hindustan. Other crops are tobacco, madder, some sugar-cane and cotton. The trade is extensive and employs above 24,000 camels. The chief exports are wool, horses, silk, fruits, &c. A considerable amount of wool is forwarded to Karáchi for export.

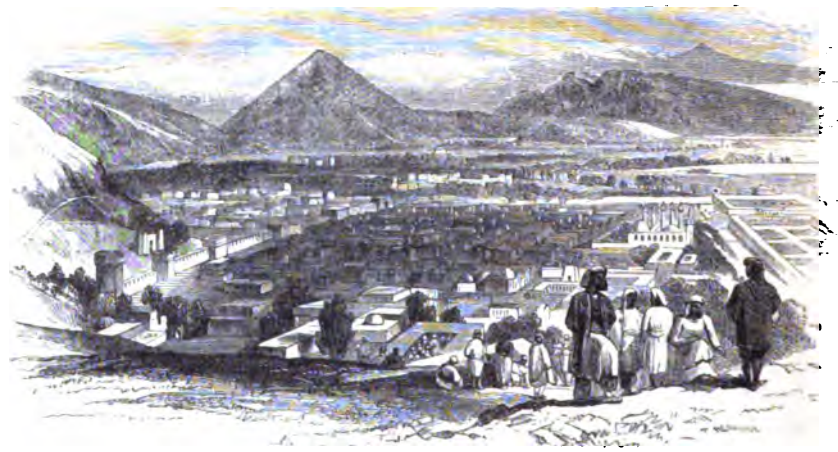
The Bolan Pass.

PEOPLE, GOVERNMENT, &c.—The inhabitants belong to different races, but the Afghans proper form the great mass of the people. They are also called Pathans, and call themselves Pushtaneh or Pukhtaneh, "Afghans" being the Persian name. They are an Iranic race, and are divided into a number of tribes (29 different tribes are enumerated by Mr. A. H. Keane in *Nature*), among which the Duranis in the west, the Ghilzais in the east, and the Yusufzais in the mountains north of Peshâwar are the most important. The Afghans are bold, hardy, and warlike, fond of freedom and resolute in maintaining it, but of a restless, turbulent temper, and much given to plunder. As regards their mode of life, they are either nomad herdsmen, or settled tillers of the soil. The former mode of life is chiefly pursued by the Duranis in the mountains between Herat and Seistan, and by the Kakers and other tribes in the mountainous region in the south-east adjoining Beluchistan. Trade is chiefly in the hands of Hindus, Tajiks, and Armenians. Their language (Pukhtu) is a distinct member of the Iranian branch of the Aryan family, but contains a considerable admixture of Persian and Hindu words, and Arabic modes of expression, the last due to their religion, which is Sunnite Mohammedanism. Other races in Afghanistan are the Hazareh and other Mongol tribes, as well as some Turkish tribes, living chiefly in the north-west; the Tajiks or Persian-speaking population, forming about one-tenth of the inhabitants, and living principally in or near the towns of the west, though they are more or less scattered over the country; like their kinsmen in Turkestan a submissive and unwarlike race chiefly engaged in trade; the Hindkis, an Indian race living in the east, maintaining themselves principally by trade and the practice of handicrafts. The various tribes of Afghanistan, both Afghans proper and others, are in many respects independent. Each tribe regulates its own affairs, and the general authority of the Ameer is almost confined to the levying of taxes and tribute and the command of the army. So slight is his authority over the predatory hill tribes in the east, south of Kafiristan, that he has sometimes been obliged to negotiate with them for a right of passage through the Khyber Pass for a British embassy. **Badakshan**, a mountainous territory inhabited by about 100,000 people, in the extreme north-east, north of the Hindu Kush, has a prince of its own, and merely pays

Afghans of the Durani Tribe.

tribute to the emir, but since 1873 his territory has been recognized both by Great Britain and Russia as belonging to Afghanistan.

CHIEF TOWNS.—The four chief towns of Afghanistan, Herat (about 45,000), Kandahar (50,000), Ghazni (15,000), and Kabul (60,000), which are all connected by a good military road about 400 miles in length leading from Persia, owe their former splendour and present importance to their situation on the trade route from India to Persia and Turkestan, an importance, however, which has greatly diminished since the discovery of the sea-route from Europe to India. The capital of the country, Kabul, the furthest east of the four, occupies a plateau about 6000 feet high, and consists mostly of miserable houses built of sun-dried



The Bala Hissar, and the City of Kabul.

bricks. The citadel and royal residence, called the Bala Hissar, stands on the slope of a hill in the south-east. For ourselves the town possesses a melancholy interest, first, on account of the destruction of a British army retreating from it in the neighbouring pass of Khurd Kabul, in 1842, and secondly, as having been the scene of the massacre of the British resident envoy with his staff and escort on the 3d of September, 1879. Ghazni, south-west of Kabul, though now a place of minor importance, was from the tenth to the twelfth century the seat of the powerful kingdom of the Ghaznavides, whose dominions extended into India and Persia. Kandahar, the furthest south of the four cities, stands about 3500 feet above sea-level, in an excellently irrigated and skilfully cultivated plain. The present town is not above 150 years old, and is built at a short distance from the ruins of the ancient city and fortress of Kandahar, which were built of an indurated earth peculiar to the locality. Herat, the furthest west of the four towns, occupies a wonderfully beautiful valley intersected by canals fertilizing innumerable gardens and orchards. It has long been a bone of contention between Afghanistan and Persia.

KAFIRISTAN.

Kafiristan is the name given to the independent territory south-east of the Hindu Kush, between Badakshan and Kashmir. The country has never yet been explored by Europeans, and is known only through the reports of Mohammedans, to whom the name Kafiristan, meaning country of the infidels, is due. It is said to consist of long valleys extending from the Hindu Kush to the Kunar River, with small glens opening into them. The valleys yield crops of wheat and barley, and the intervening hills afford pasturage for sheep and cattle. The inhabitants, called by the Afghans Siahposh Kafirs (black-clothed infidels), are an indomitable race of hillmen, with powerful frames, and, it is said, the features and complexion of Europeans. They are of Aryan origin and speak a language peculiar to themselves. From the days of Alexander the Great they have never been conquered, and they have never embraced Mohammedanism. The area of their territory is 19,957 square miles; the population estimated at 1,000,000.

BELUCHISTAN.

Beluchistan is an extensive country lying to the south of Afghanistan. It comprises the six provinces Cutch, Gundava, Saravan, Khelat, Jhalavan, Lus, and Mekran or Mukran. A large part of the last-mentioned province has been acquired within the last few years by Persia. The area is about 107,000 square miles, the population about 350,000.

PHYSICAL FEATURES AND PRODUCTIONS.—The general surface of Beluchistan is still but little known except on its borders. It seems to consist mainly of partly rugged and mountainous and partly level desert land, resembling in this respect Afghanistan, but apparently having proportionally even a greater area of uninhabitable territory. This area is chiefly in the north-west in the region adjoining Seistan, and in the south, where almost the whole of Mekran, the ancient Gedrosia, appears to be of that character. The former region is remarkable for the undulating character of its surface, caused by the wind raising the loose sand into a succession of low hills with a gentle rise in one direction and a pretty steep descent on the other, so steep that camels traversing this desert are in the habit of sliding down this side on their knees. Enormous columns of sand are sometimes raised aloft and swept across the surface of the desert by storms of wind, and the mirage is in this region not an uncommon phenomenon. Many of the mountains are of great height, and covered with snow. There are several broad and high table-lands, extremely cold in winter and extremely hot in summer. Mekran is one of the hottest regions of the globe. The mineral wealth of the country is believed to be considerable, including gold, silver, lead, iron, copper, many kinds of mineral salts, and saltpetre. Throughout Beluchistan there is a great deficiency of water, particularly in summer. In the north part are the rivers Bolan and Mollah, the courses of

which form the celebrated passes bearing their names, leading from the valley of the Indus to Beluchistan and Afghanistan. The oases of the deserts of Beluchistan are adorned by the slender date-palm, while the highest elevations in the mountainous region are clothed with the beautiful *Zizyphus Jujuba*, resembling the teak-tree. The tamarind and tamarisk trees, the walnut, mango, wild fig, and wild olive, besides other trees, are common. As in Afghanistan, the asafœtida plant is diffused over all the mountains. In the low-lying valleys, especially those of Kuch Gundava in the north-east, rice, cotton, and indigo of peculiar excellence are grown; and in the higher regions the products are the grains and fruits of Central Europe. A railway, which it is intended to continue to Kandahar, has been made by the Indian government from Sakkar on the Indus to Sibi within the frontier of Afghanistan. The manufactures of Beluchistan are confined to a few matchlocks and other firearms at Khelat, and the trade is unimportant.

PEOPLE, &c.—The inhabitants are divided into two great branches, the Beluchis and Brahuis, different in their language, figure, and manners, and each subdivided into a number of minor tribes. The Brahuis have greater physical strength than the Beluchis, and are less addicted to predatory violence. Both races are hospitable, brave, and capable of enduring much fatigue. They live in rude tents made of black felt or coarse cloth, of goat's or camel's hair, stretched over a frame of wicker-work. Both Beluchis and Brahuis are very ignorant but zealous Mohammedans. The Beluchi language resembles the modern Persian, the Brahui presents many points of agreement with the Dravidian languages of India. The government is despotic, the khan having unlimited power over life, person, and property. He usually resides at Khelat, a place of about 12,000 inhabitants, on a plateau about 7000 feet in height, situated about lat. 29° N. The rule of the khan is almost confined to the immediate province around his capital. Since 1877 he has been subsidized by the Indian government, and a British agent has been stationed at Khelat.

INDIA.

India[1] is a name used both in ancient and modern times with great latitude of signification. It has always been applied more or less comprehensively to the central peninsula of Southern Asia, but even the Eastern Peninsula is sometimes included in the term, and is known by the names of Further India, India-beyond-the-Ganges, and Indo-China. British conquests having extended to and beyond

[1] In order to put an end to the irregularity which characterized the spelling of Indian names a uniform system has been adopted for the purpose within the last few years. Lists of Indian names in the different provinces of India were drawn up by the provincial governments, and these lists after being revised and sanctioned by the governor-general in council were published in the official gazette of India. In pronouncing Indian names spelled according to this system "the reader will bear in mind that *a* is sounded as *a* in *cedar*, or as *u* in *gun*; *á* as in *father*; *e* as *a* in

the utmost limits of the central peninsula, India Proper, in its widest sense, may now be taken to include the British possessions within these limits, together with the dependent states, and likewise the British possessions contiguous to India proper in the Eastern Peninsula. The length of this territory from north to south is about 1800 miles; its greatest breadth east to west about the same. The length of the coast-line is upwards of 4000 miles.

DIVISIONS AND POPULATION.—With the exception of the independent states of Nepál and Bhután India generally is divided under British rule into the three presidencies of Bengal, Bombay, and Madras; the first under the governor-general, the two latter under governors. To each presidency some native states are attached. The presidency of Bengal is divided into portions directly under the rule of the governor-general and other portions under lieutenant-governors and chief commissioners; and all these administrative sections except Madras and Assam are subdivided into divisions and districts, Madras and Assam into districts only. The provinces of the Bengal presidency and some other districts are under lieutenant-governors and commissioners. The French still possess in India the settlements of Pondicherry, Karikal, Mahé, Yanaon, and Chandernagor; the Portuguese possess Goa, Damán, and Diu.

The table on the following page gives the area and population of British India, with estimates (in italics) for the native states and foreign possessions.

PHYSICAL FEATURES.—The peninsula of India forms an irregular four-sided figure washed on two sides by the sea, and having on another of its sides the great mountain chain which separates it from Tibet on the north, while the fourth side is formed by the series of mountains and deserts which separate it from Afghanistan and Beluchistan. The Himálayas, the loftiest mountain range in the world, with heights of upwards of 5 miles above the level of the sea, stretch with an average breadth of about 150 miles along the whole of the northern frontier from the defile of the Indus in the north-west of Kashmír to the elbow of the Bráhmaputra, and descend by successive slopes to the elevated plain of Northern India. On the east there are various ranges of hills in Assam, and the Yoma and Siamese Mountains on the borders of British Burma. South of the Ganges, between that river and the Satlej, a range, called the Sewálik Mountains, runs parallel to the Himálaya, with an extreme breadth of ten miles and an extreme height of 3500 feet. South-west of that range the Arávali Mountains, running from south-west to north-east for a distance of 300 miles, with a breadth varying from six to sixty miles and a mean height of about 3600 feet, separate the valleys of the Lúní and the Máhi. To the south-east of this range, the Vindhya Mountains, a range of about 3000 feet in height, which extends irregu-

made; i as in *bit; í* as *i* in *machine; o* as in *hole; u* as in *full; ú* as in *rude; ai* as it is in *aisle; au* as *ou* in *house; ch* as in *church*; and *th* as *t* in *at*." (Duncan's *Geography of India*.) The simplicity of this rule has determined us to adopt the new system, except for those names which are known to everybody under an Anglicized form, such as Calcutta, Lucknow, &c., and those which are generally known under a popular form widely different from the native name, such as Travancore (Tiruvángkúr). Where two forms of a name are given the first is always the popular English form, the second (in parentheses) the form of the new system.

	Area in sq. miles.	Population.	Pop. per sq. mile.	Total area.	Total Population.*	Total pop. in sq. m.
Under the Governor-General.						
Ajmír and Mhairwára, ...				2,711	396,889	146
Berár, ...				17,711	2,227,654	126
Curg, ...				2,000	168,312	84
Mysore (Maisúr), ...				*29,325*	*5,055,412*	*172*
Central India and Bundelkhand,				*89,098*	*8,360,571*	*98*
Rájputána, ...				*130,939*	*10,192,871*	*78*
Haidarábád, ...				*80,000*	*9,000,000*	*112*
Baroda, ...				*4,399*	*2,000,225*	*455*
Manipur, ...				*7,584*	*126,000*	*17*
Under Lieutenant-Governors.						
Bengal, ...	156,200	60,502,897	383†	194,188	62,831,337	324
Native States, ...	*37,988*	*2,328,440*	*61*			
North-west Provinces (including Oudh), ...	105,395	42,001,436	399	110,520	42,658,449	386
Native States, ...	*5,125*	*657,013*	*128*			
Panjáb, ...	104,928	17,611,498	168	219,717	22,978,540	105
Native States, ...	*114,742*	*5,367,042*	*47*			
Under Chief Commissioners.						
Central Provinces, ...	84,208	8,201,519	97	113,320	9,251,229	82
Native States, ...	*29,112*	*1,049,710*	*82*			
British Burma, ...				88,283	2,747,148	31
Assam, ...				45,302	4,162,019	99†
Under Governors.						
Madras, ...	138,856	31,672,613	228	148,674	34,962,005	235
Native States, ...	*9,818*	*3,289,392*	*335*			
Bombay, ...	123,142	16,349,206	132	190,512	23,133,688	121
Native States, ...	*66,410*	*6,784,482*	*102*			
Total under British administration, ...	869,686	186,041,191	214	1,474,606	240,258,143	163
Total of Native States, ...	*604,590*	*54,216,952*	*89*			
French Possessions, ...				*178*	*271,460*	*1,525*
Portuguese Possessions, ...				*1,086*	*407,712*	*375*
Total of all India, ...				1,475,870	240,937,315‡	163

* Date of last census in Ajmír, 1876; Berár, 1867; Mysore, Curg, Madras, Assam, 1871; Bombay, N. W. Provinces (exclusive of Oudh), Central Provinces, and British Burma, 1872; Panjáb, 1868; Oudh, 1869; Bengal, Nov. 1871 to April 1872.

† The area of the wild country in which the population is not reckoned has been excluded in calculating these averages.

‡ According to the preliminary returns of the census of 1881 the total population of India then amounted to about 253,000,000, an increase of 5 per cent since the previous censuses.

larly across the peninsula from Gujarát to the basin of the Ganges, forms an anciently-recognized division of the entire country into two parts under the names of Hindustan and the Deccan (Southern Land). The name Hindustan, given in this restricted sense to the northern part of the peninsula, is frequently applied to the whole. The northern region of the Vindhya Mountains forms the plateau of Malwa about 2000 feet above sea-level. On the south the range is separated by the valley of the Narbada (Narmadá) from the Sátpura Mountains, and these again by the valley of the Taptí from the Chandur and Gawalgarh ranges, forming the northern boundary of the southern plateau of India or the Deccan proper. The other boundaries of this plateau are the Western Ghâts, running parallel to the west coast at a short distance from it, the Eastern Ghâts,

a much less elevated and less continuous range running parallel to the east coast but at a much greater distance, and the Nílagiri Hills on the south. The prevailing character of this region is that of a hilly country with a general slope from west to east, and in the neighbourhood of the Nílagiri Hills from south to north. The Western Ghâts, which attain in the south a height of 4500 feet, and where the Nílagiris branch off a height of 7000 feet, though at most parts much lower, proceed along the west coast from the mouth of the Taptí to Cape Comorin, the southernmost point of India. They do not generally recede more than 40 miles from the sea, and rarely more than 70. On the sea-side their descent is generally precipitous, forming a regular sea-wall. The elevation of the Eastern Ghâts nowhere exceeds 4500 feet, and their descent towards the coast is much more gradual than that of the western range. The elevation of the southern plateau of India is in the north about 3000 feet above the level of the sea; in the south about 7000 feet.

RIVERS AND LAKES.—The Ganges is formed by the union of two small streams in the borders of the division of Kumaun in the North-west Provinces at the height of 1500 feet above sea-level. At its broadest part it is three miles wide, and during the dry season its greatest depth is about thirty feet. In the rainy season before the end of July it overflows its banks and spreads over all the flat country of Bengal. It is navigable for boats from Hardwár, 1400 miles above its mouth, and through its whole navigable extent the amount of traffic carried on on its surface is enormous. Below Allahábád the river is constantly crowded with vessels of all sizes and descriptions. The water of the Ganges, especially at particular portions, is considered sacred by the Hindus, who make pilgrimages to the river from all parts of India in order to wash themselves in its waters. The Bráhmaputra (son of Brahma) is believed to be the lower part of the course of the Sanpu, which takes its rise in Tibet at a point nearly opposite the sources of the Ganges and at no great distance from those of the Indus. The theory has been started more than once, however, that the Sanpu is in reality the upper part of the course of the Iráwadi, and though the general opinion appears to be that the Sanpu and Bráhmaputra are one river, the question cannot yet be said to be definitively settled. Mr. Gordon, civil engineer of the department of public works in Burma, has recently advocated very strongly the claims of the Iráwadi. The volume of water discharged by this river is nearly twice that discharged by the Ganges. During the flood season, from June to September, its waters cover the whole plain of Assam. Both it and the Ganges are subject to the phenomenon called the bore. The Indus has its origin on the north side of the Himálayas at an elevation of 22,000 feet above the sea, and in the first 360 miles of its course falls at the rate of 22 feet per mile. At Atak, 940 miles above its mouth, it begins to be navigable, and from thence to the sea it falls at the rate of one foot per mile. It is remarkable for the great variations in its breadth and depth and the velocity of its current, and also for the great quantity of silt it carries down and its consequent liability to shift its bed in the lower part of its course. (See below, Geology.) Between Kasmor and Sakkar the river is confined to its banks by a series of embankments constructed under

British rule, and forming one of the largest series of embankments in the world. Both the Indus itself and its principal tributaries are navigable rivers, though the navigation is greatly obstructed by sand-banks. The soil of the plain belonging to the basin of the Ganges and the Indus is so finely comminuted that it has been said it is possible to go from the Bay of Bengal to the Indus and return again to the sea without finding a single pebble. The rivers of Southern India, when navigable at all, are so for the most part only during the rainy season. The Godávari is navigable for boats at all seasons of the year. The Mahánadi (Great River), which at Sambalpur, 260 miles above its mouth, is nearly a mile wide, is navigable for large vessels during the rainy season three hundred miles up, but during the dry season has its bed almost emptied in the upper part. The Krishna (Black River) is not navigable at all, in consequence of the rockiness of its bed and the swiftness of its current. The Káveri and some other rivers are navigable only down stream by means of rafts consisting of planks resting on water-bottles made of skins, or bamboos with skins stretched over them.

There are no lakes of importance in India, the largest being those of Chilká and Kolair on the east coast. In Rájputána there are the salt lakes of Sambar, Didwána, and Sir.

GEOLOGY.—The geology of India, as far as it is known, considering its extent is not complicated. All the great mountain ranges are chiefly composed of granite and of granitic rocks, which form also the base of the southern plateau and of the Garo Hills in Assam. Both in the peninsula and in the Himálayas gneiss predominates, associated with mica-schist, hornblende schist, chlorite slate, and primitive limestone. Syenite prevails in the south-east of the peninsula. In the southern portion of the Western Ghâts the granitic rocks are overlaid by an iron clay, which is continuous to the end of the peninsula, and reappears in the island of Ceylon. In the upper portion of the Western Ghâts and adjoining ramifications of the Vindhya range, basaltic trap in various forms overlies the granite to an extent unparalleled elsewhere in the world. It entirely covers a large portion of the table-land of the Deccan, and the decomposition of this trap rock has formed the rich black soil, which has been found to be so well adapted for the cultivation of cotton. On the lower sides of the Himálayas regular strata of the secondary and tertiary periods are largely developed, and the greater part of the valleys of the Indus and Ganges, between the mountains on the west, north, and east, and the southern plateau is filled with alluvial deposits. The tertiary formations attain their greatest breadth towards Sind and the Panjáb, where (in the Sewálik mountains) fossil remains, including many of singular forms and gigantic dimensions, are abundant. Among the geological changes in process, the vast quantities of soil brought down by the great rivers is worthy of note. The Indus, owing to this cause, is continually changing its bed, and moving slowly westward. The bed of the river is raised by the deposit above the level of the surrounding plain, when it ultimately falls over, and forms a new channel. The silt annually brought down is said to be sufficient to form an island 40 feet high, 42 miles long and 27 broad. The Ganges also brings down immense quantities of silt, which is

indeed brought down in unusual quantity by all the rivers of India. The principal coal-fields in India are found in the region bounded north by the Ganges, south by the Godávari, and stretching east and west from the neighbourhood of Calcutta to the middle of the valley of the Narbada. Indian coal is distinguished by its excessive lamination. The fixed carbon averages 52 per cent, about 15 per cent less than English coal, and the ash is from 10 to 30 per cent. The chief beds are in the valley of the river Damodar. Coal is also found in the valleys of the Wardha and the Godávari, in Assam, and in the Khasi Hills. Coal has been worked since 1775. For mineral wealth India is not remarkable. Gold, which appears to have been abundant in ancient times, afterwards ceased to be found to any extent, but rich mines of it have again been discovered at Kollar in Mysore, and at Wynaad near the south-west frontier of Mysore in the Madras Presidency. The diamond mines once famous are exhausted. Iron, copper, and lead are abundant in the Himálayas; graphite is found in the province of Kumaun; lignite in the tertiary formations; nitre forms an article of export, and the supply of salt is inexhaustible. In Kach and along the banks of the Narbada agates and carnelians abound, which are cut and wrought with great ability in Súrat. Nitre and nitrate of soda effloresce in the soil in great quantities in different parts of Hindustan.

CLIMATE.—Of 28° of north latitude over which India extends 15½° are within the tropical, and 12½° within the temperate zone. Owing to modifying circumstances, the climates contained within this range are not only extremely various, but distributed with great irregularity. The isothermal line indicating the greatest annual heat on the surface of the globe crosses the southern part of India obliquely from the Malabar to the Coromandel coast nearly in the same latitude in which the Nílagiri Hills enjoy the climate of the finest part of the temperate zone. One of the chief modifying circumstances, of course, is altitude; another is the distribution of moisture, the great regulators of which are the alternating winds called *monsoons* (from the Arabic word for "season"). The degree in which these winds determine the general character of the climate of India gives a remarkable simplicity and persistency to the climatic phenomena all over the country. "Thus," writes Mr. Eliot, officiating meteorological reporter to the government of India in 1877, "the north-east monsoon prevails in its full integrity over the whole of India from November to the middle or end of February. Local sea winds gradually set in round the coast and increase in intensity and extend their area of influence during March, April, and May. During the latter half of May and the beginning of June, the sea winds are still further intensified and converted from a shallow atmospheric current to a deep current of remarkable steadiness and force. This blows [from the south-west] towards the peninsula of Southern India as its goal during July and August, and begins to weaken in September. During that month and the month of October, it gradually retreats and thins off, yielding place to the north-east trade-winds. Each of these lower atmospheric currents is remarkably persistent during the period of its prevalence, and each retreats very slowly and gives way very gradually to the other." The effect which this regular atmo-

spheric circulation has upon the rainfall of India is mainly due to the fact that the south-west current coming from tropical regions is heavily laden with moisture. At Cape Comorin this current is split into two sections, one of which strikes against the Western Ghâts and there discharges the greater part of its moisture, becoming less and less humid as it advances to the north, and being quite drained of its contents before it reaches Sind, while the other, sweeping over the Bay of Bengal, sucks up more and more moisture as it advances, and scarcely begins to empty itself until it reaches the hills of Assam, where its course is diverted up the valley of the Ganges, in ascending which this section of the great current is gradually drained, just as the western section is gradually drained in advancing towards the north. In consequence of this the regions of heaviest rainfall in India are the southern part of the Western Ghâts and the mouth of the Ganges valley with the hills to the east. The Khási Hills in Assam, in fact, have the heaviest rainfall in the world, upwards of 600 inches yearly. For the same reason the periodical rains commence in both of these regions at about the same time, in Calcutta about the same time as at Calicut (the beginning of June). When the direction of the current is reversed, about the end of October, rain falls on the east coast, but not nearly in as great quantity as that which falls on the west coast during the summer months. In Northern India also there are considerable winter rains in addition to the monsoon fall. The following details will serve to illustrate these general statements. The basin of the Indus, including all Sind and the half of the Panjáb, is an arid region with an annual rainfall under 15 inches. The high plateau in the interior of South India has an annual rainfall generally under 30 inches. On the whole Malabar coast the rainfall is over 75 inches; at Kananor it reaches 128 inches. On the Coromandel coast it is very much lower, being 45 inches at Vizagapatam, 50 inches at Madras, while further south it falls below 30 inches. Between the arid region of the Indus and the Ganges runs a dry zone of 100 to 200 miles wide, including Lahore, Delhi, and Agra, with a rainfall between 15 and 30 inches. The valleys of the Taptí, the Narbada, the lower part of the Jamna, the Ganges, and the Bráhmaputra, are generally over 30. Along the slopes of the Himálayas from Kashmír east to the boundaries of India, and south-east to the mouths of the Mahánadi, runs a belt of country with a rainfall

Cape Comorin, from near Calcad.

over 60 inches, within which is included the lower course of the Ganges. Within this is another belt, including a lower slope of the Himálayas, and the lower course of the Bráhmaputra before its junction with the Ganges, in which the rainfall rises above 75 inches.

The same regularity as marks the rainfall of India characterizes also the variations in temperature. At Calcutta the cool season begins about November, the hot season in February, the heat increasing gradually till May. In Calcutta, where the mean annual temperature is about 79°, the range is from 50° to 85° Fahr. In Bombay the mean annual temperature is about 82°, the range about 10°; in Madras mean about 84°, range 7° to 8°.

VEGETATION, AGRICULTURE, &c.—We cannot attempt here anything like an enumeration of the vegetable products of India. Where moisture is plentiful,

The Government House and Treasury, Calcutta, from the old Race-course.

as in the valley of the Ganges, vegetation is superabundant. The delta of the Ganges, in particular, called the Súndarbans, is covered with dense jungle full of the largest wild animals, and the excessive vegetation renders most of the mouths unnavigable. There are many other similar tracts of extensive forest and jungle. The most extensive of these is a strip called the Tarái stretching along the base of the Himálayas with a breadth of from twenty to fifty miles, now, however, partly recovered for cultivation. (See below, Results of British Rule in India.) On the Coromandel coast, on the other hand, the heat, which reaches 100° or 120° Fahrenheit, destroys vegetation, and the delta of the Indus from the south-east of the Panjáb to the Ran, or great salt marsh of Kach, forms a great sandy desert, continuous across the river with the desert of Beluchistan. In the various altitudes of the Himálayas, forms of vegetable and animal life belonging to all the various climates from tropical to polar are to be found. The lower slopes of the Himálayas are clothed almost exclusively with tropical forms. Higher up, between 4000 and 10,000 feet, is the region of forests and cultivation, producing all the types of trees and plants that belong to the temperate zone, and having extensive forests of conifers. In the east forest trees are met with at a height of 13,000 feet. Rhododendrons ascend to 14,000 feet, and phanerogamous plants

are found at the height of 19,500 feet. The Himálayas as well as the Western Ghâts are magnificently wooded. The characteristic trees of the Indian forests are the deodar in the north-western Himálayas (Kashmír and the north-east of the Panjáb), the sál, on the southern slopes of the Himálayas from Kashmír to their eastern extremity, the *Ficus elastica*, yielding caoutchouc, in Assam and along the foot of the Himálayas to Sikkim, the babul in Sind adjoining Beluchistan, the sandalwood tree in the southern part of the Western Ghâts, and teak in the northern part of the Western Ghâts and on the southern plateau generally as well as in British Burma. Teak is the most important timber tree of India, and next in order of importance is the sál. The bamboo, the banyan, and the sapan are also characteristic of Indian forest scenery. Forest conservancy has for some time occupied the attention of government. A forest department has been established as part of the administration of the country, and it has been found necessary to retain as many important tracts as possible in the hands of the state in order to secure the two main objects of forest conservancy, the protection of the land from destructive floods consequent on the clearing away of timber, and the ensuring supplies of timber and fuel for the use of posterity as well as of the present generation. The reserved forests are under the exclusive management of the department, but by far the greater portion of the forest area is still unreserved. In the latter the people still retain rights of pasturage, of destructive burning, of desultory cultivation, and of collecting products. Much has also been done by the department in the way of forming plantations both of native and exotic trees. Among the latter the Australian eucalyptus and acacia may be mentioned as having been established in the southern hills, and the cinchona tree of South America both there and in other parts of India.

Amongst the cereals cultivated during the wet season are millets, especially jowári (*Sorghum vulgare*), and bajra (*Holcus spicatus*), (these two grains furnishing the principal food of the people in the Bombay Presidency); maize, which is not popularly used as a bread-corn, but cooked and eaten as a green vegetable; and rice, in such localities as are favourable for its culture. Rice is the chief food of the people only in Bengal. The grains cultivated during the dry season, from October to June, are bearded wheats, barley of several kinds, and various pulses. In the delta of the Ganges rice yields two crops annually, in August and December. Besides cereals the staple natural products of India include cotton, flax, hemp, jute (in Bengal), rhea (in Bengal and Assam), silk (in the Bengal divisions of Bardwán and Rajsháhi, in the Jalandhar division of the Panjáb and elsewhere), indigo and opium (in Bengal, particularly the Patna division, the Panjáb and the Madras Presidency), tea (in the north-east—Assam, Chittagong, and Dárjiling (in Kuch Bihar), and also in the Punjáb, N.W. Provinces, Madras and British Burma), coffee (in the hill districts of Southern India), sugar-cane, tobacco (in Madras, Mysore, and Bombay), ginger, pepper, cardamoms (in Curg and Mysore), palms bearing nuts which are extensively consumed, anise, dye-woods, &c. Cotton is a most important staple of Indian produce. All the plants yielding it thrive more or less in different portions of the territory, especially the *Gossypium herbaceum*, which is supposed to be indigenous in India. It is raised chiefly in

peninsular India, especially in the uplands of the south and west, in which latter quarter are the principal ports of shipment. Broach, Kathiawár, and other districts in Gujarát, and Dhárwár in the Bombay presidency, Coimbatore in the Madras presidency, and the table-land of Mysore, are the portions of India most famous for their cotton crops. The indigenous cotton (a short-stapled kind) succeeds only on what is called the "black cotton soil," which is estimated to extend over about 200,000 square miles of country. The detritus at the river mouths in Bengal has been found, on analysis, apparently well suited for the growth of the "sea island" cotton of the United States; but little cotton is raised in the Bengal presidency, its production being chiefly limited to the regions not producing the other great staples—indigo, sugar, silk, and opium. American cotton has been introduced with success, and is cultivated chiefly in the Khandesh division of the Bombay presidency and on the south-west coast. Much attention is given by the British authorities to the fostering of the silk cultivation. Besides the mulberry silkworm, which affords the best silk, various native silkworms are reared, the most important of which is the *tasar* (*Antheræa paphia*) yielding a hard cocoon of grayish-white colour. Of the crops of recent introduction the potato is by far the most important. It is extensively grown in Assam and the northern divisions of the North-west Provinces, and has risen to the rank of a staple product. Lucerne has been found to succeed well as a fodder crop in Madras. European fruits abound, and among indigenous fruits may be mentioned the mango, plantain, pomegranate, citron, date, almond, grape, pine-apple, and tamarind.

Almost from the commencement of British rule in India the government has recognized the duty of making advances to owners and occupiers of land for the promotion of minor works for agricultural improvement, such as could be carried out by the people themselves. In September, 1871, an act called the Land Improvement Act, designed to consolidate and amend the law relating to such advances, came into operation, and by this act any landlord or tenant desiring to make improvements on land of which he is in possession or occupation may make application to the collector of the district for an advance, stating the nature and amount of the security for repayment. No advance, however, is made to a tenant if the landlord disapproves of the application. The interest usually demanded by the government is 6¼ per cent, but although this is an exceptionally low rate for India, the *ryots* or Hindu cultivators generally prefer to deal with the native money-lender (the *sowcar*), who may charge him as much as 36 per cent. The reasons for this preference are chiefly two, first, that the ryot is in many cases so deeply indebted already to the native money-lender that he cannot afford to offend him, and, second, that he has a great dislike to the formalities connected with making an application for a government advance and to the rigid terms made by the government for repayment. The sowcar does not seek for repayment of his principal, as long as he can allow the debt to run on with a fair chance of receiving payment of his interest. Regarding Land Tenure in India, see below, Revenue.

IRRIGATION.—The unequal distribution of the rainfall of India referred to in

the section on climate causes a large part of the country to be dependent either entirely or partially on irrigation for its cultivation. Four methods of irrigation are adopted according to circumstances—well irrigation, irrigation by means of tanks, inundation canals, and perennial canals. The first method is the most suitable wherever water is to be found at a moderate depth below the surface. The second method is extensively applied throughout India, but especially in the southern part of the peninsula, where the whole face of the country is dotted over with these artificial reservoirs, which are sometimes many miles in extent, sometimes only a few acres. The tanks are formed by constructing embankments to confine the water wherever the natural formation of the surface affords the means of so collecting it and again conducting it away to those parts which it is necessary to supply with moisture. Many parts of the great plain of Deccan and Southern India were formerly brought to a high state of cultivation by collecting the rain in artificial tanks, but frequent periods of misrule have caused improvements of this kind to be much neglected, and in all parts of India there is still much of this work to do. The third method, that namely by inundation canals, has been largely adopted in the lower valley of the Indus, where the irrigation canals are annually filled by the inundations of that river. The construction of perennial canals is a matter that demands a great outlay of money and much engineering skill, but several important works of this kind have been accomplished under British rule, especially in the North-west Provinces and the Panjáb. For the maintenance of irrigation canals the expenditure of much labour is often required to keep them free of silt. In some cases this is effected at the cost of the government, in others by imposing a special tax or impost for the purpose, and in others by exacting statute labour from the cultivators. The chief details regarding irrigation in different parts of India will be given in the notices of the separate provinces. In those parts of India in which, on account of the excessive rainfall, irrigation works are unnecessary, embankments are often needed to preserve the crops and villages from floods, and the maintenance of these embankments falls to the irrigation department.

ZOOLOGY.—To begin with that branch of zoology which is associated with agriculture, we may mention that the breeding of stock has received a good deal of attention throughout India. Great pains have been taken especially in Madras to improve the native sheep, and English breeds of sheep have been introduced into the Panjáb and other provinces, while shows and prizes have stimulated the breeding of cattle. Among Indian varieties of cattle, that with a hump of fat above the withers, originally a native of Bengal but now spread over all India, is characteristic. By the Brahmans it is regarded as sacred. The buffalo also is common as a domestic animal throughout India, and even the largest and most savage kind of buffalo (the ární) is sometimes found domesticated. Much attention is bestowed by the government on the breeding of horses for the sake of obtaining supplies for the army. The governments of Madras and Bombay depend on the open market for their supply, but government studs have long existed in the Bengal Presidency. In these studs it is chiefly if not exclusively foreign breeds that are reared; but various excellent breeds of horses have existed in different

parts of India (Kathiawár, the Bhima Valley in Kumaun, the Panjáb, &c.), and the government is desirous of encouraging private enterprise in the improvement of these. The native horse of the southern plateau is small and active but ungainly. Supplies of foreign horses are received from the Persian Gulf, Central Asia, Australia, the Cape, and England. The elephant also is domesticated in every part of India. It is used as a beast of burden, and is often seen in considerable numbers carrying state *howdahs*, or seats for one or more persons, in the trains of native princes.

Among wild animals the elephant, the buffalo, the rhinoceros, the tiger, leopard, panther, and numerous smaller carnivora, the bear, boar, antelope, deer in numerous varieties, wild ox, ass, sheep and goat, monkeys in great variety, and the greater number of European quadrupeds are found. The maneless (or rather short-maned) lion of India (*Leo Gujratensis*) is said to be extinct. Alligators, snakes, and reptiles in all varieties are very numerous. Many of these wild animals, especially tigers, leopards, bears, wolves, hyenas, and snakes are very destructive, and steady efforts are made by the government to get them exterminated. In consequence of these efforts their number has been greatly reduced, and the loss both of human life and cattle from their ravages is now enormously less than it was during last century. The deaths from wild beasts at that time are estimated to have amounted to about 150,000 annually, they now amount to only about 20,000, the great majority of which are from snake-bites. The total number of cattle annually destroyed by wild beasts is about 50,000. The wild elephant, which about the end of last century was the most destructive of all the predatory animals of India, sometimes appearing in herds which trampled whole villages under foot and causing the desertion of extensive districts, is now so rare that it is specially protected by the government, and in most parts of India can be caught only by official license or under official supervision. Of birds, the eagle, vulture, pheasant, peacock, cockatoo, parrot, paroquet, stork, as a migratory visitor, are characteristic species, and other varieties both indigenous and common to other regions are numerous. Fish are plentiful, and in great variety both on the coasts and in the rivers.

Elephant with Howdah.

MANUFACTURES.—The throwing open of India to the products of Europe,

and especially of the United Kingdom, has been attended by a marked and frequently a complete decay of native manufactures. In the bazaars and markets of India European goods have to a large extent taken the place of native productions. The once famous Dacca muslin, for example, is now only made to order. On the occasion of the Prince of Wales's visit to India some pieces were ordered by a native gentleman for presentation to the prince. Each piece measured 20 yards by 1, but the fineness of the texture was such that the weight was only about 3½ ounces. It is not on economical grounds that this is to be regarded as a misfortune. Where European fabrics and utensils have superseded native articles, it is because the skill and organization of European labour offers, on the whole, greater advantages to the people of India than their

Carriages drawn by Oxen. 1, Hackery. 2, Dooly.

own labour would do if employed in the same direction. But the manufactures of India, although inferior in mechanical development to the manufactures of Europe, are of an original type, and some of them have been widely famed for artistic excellence. In the districts where the influence of European trade is least felt they are still extensive. The annual produce of the looms and workshops of the Panjáb, including cotton, woollen, and silk manufactories, is estimated at not much short of £5,000,000. What is more remarkable, the manufacture of cotton goods in mills has sprung up and made considerable progress in the Bombay Presidency. The first factory was started at Kurla (a village in the neighbourhood of Bombay) in 1863. The origin of this trade, which promises to become important, is far from being creditable to our own manufactures. It is officially ascribed to the bad quality of the goods received from Manchester. The cloths manufactured in India are chiefly the coarser varieties, but are said to be remarkable for their excellence and durability, and the native cotton mills have almost annihilated the British trade in the coarser tissues and yarns. There are also considerable silk manufactures in the Bombay Presidency, and also in Bengal

and the Central Provinces, and jute manufactures in Bengal. There are other evidences that the influence of European competition on native manufactures has not been altogether destructive, and that these may in many departments be able to hold their own. Native enterprise has undoubtedly in some cases been stimulated, and industrial exhibitions at Lahore, Rúrkí, Calcutta, Nágpur, Madras, and other places, are said to have had a beneficial influence. Iron has been worked from the earliest period, but on a very small scale.

MEANS OF COMMUNICATION.—The want of efficient means of communication between the various parts of India has often been felt. The local famines arising from the frequent recurrence of droughts would be entirely obviated if the means of subsistence could be freely transported from the districts where they are abundant to those where they are deficient. As late as 1850 few public ways existed that were better than mere tracks, along which rude cars could be drawn or oxen driven. When the wealthy travelled they either rode on ponies or were carried in palanquins on the shoulders of palanquin-bearers, servants following on foot with tents and baggage. The poor were obliged to walk, resting by night under trees. Pack-bullocks of small size, carrying a load of about 240 lbs., and driven by *brinjaris*, a caste of Hindus whose business was that of carriers, were in general use for the conveyance of many kinds of goods; camels, for the same purpose, toward the western frontiers; and, in the Himálayas, goats and sheep. Packages of merchandise were often also carried for long distances on the backs of brinjaris. All these modes of conveyance are now confined mainly to the remoter districts. All the large towns are now connected by good roads, and other means of communication have been constructed. Some of the irrigation canals, as well as the rivers, also supply means of inland navigation, and the coasting trade has been of important service to the districts within reach of its influence. But by far the most important step taken to render the internal communications of India permanently efficient has been the construction of railways. The whole country is already intersected by main lines running east and west and north and south, and the northern system is already connected with the southern by one line of communication (Allahábád to Bombay), and is about to be connected by others. The total length of railway lines open in 1878

1, A Camel Harkára or Messenger. 2, A Foot Harkára.

was equal to about one mile for every 179 square miles of surface, and at that time less than a fifth (about 1800 miles) of the whole proposed scheme of railways remained to be constructed. The greater part of this railway system was constructed by companies on whose capital interest at the rate of 5 per cent was guaranteed by government. Government, however, no longer intrusts the railways to private enterprise, and all lines sanctioned by it are now constructed by the state. If the revenue of the railways exceeds the guaranteed interest the government is entitled to half the profit, and government has the power of purchasing the guaranteed lines at the expiration of twenty-five or fifty years, either at a mean valuation for three years, or a proportionate annuity for ninety-five years. Telegraph communications have been formed between all important places in India, as well as between India and Europe. The total number of telegrams annually conveyed by the wires of British India is equal to about one for every 133 of the population, and the total number of letters received for delivery is equal to about two for every three persons. India is a member of the international postal union.

The external communications of India have also occupied the attention of government, without which they would go to ruin in consequence of the silting up of the river mouths and the formation of sand-banks by the ocean currents. Many of the old ports of India have from this cause ceased to exist. The harbour of Karáchi, near the mouth of the Indus, has had nearly £500,000 expended on it, and large sums have likewise been laid out on the harbours of Calcutta, Madras, and Bombay.

COMMERCE AND MANUFACTURES.—India is not in any high sense a commercial country. The desire of other nations to share in its natural riches has always been the chief cause of its commerce, which has been principally promoted by foreign traders. Its foreign commerce, which has been entirely developed through European enterprise, is now probably much greater than at any previous period of its history, but even yet must be regarded as only in its infancy. The rise of the foreign commerce of India has taken place almost entirely under British rule. Last century, before the country came under British rule the whole value of the exports did not reach a million sterling annually; the average value of the exports calculated over a series of ten years now amounts to £59,000,000. The country with which the foreign trade is principally carried on is the United Kingdom, which, however, sends to India a far larger proportion of the Indian imports (about three-fourths of the whole) than it receives of the Indian exports (less than one-half). Among other countries that share in the foreign trade of India the next in importance is China, which receives about one-fifth of the exports (chiefly opium), and sends about a tenth of the imports; and next to China, among the countries and localities to which the exports are sent are France, Ceylon, the Straits Settlements, Italy, the United States, and Mauritius, and among countries from which imports are received the Straits Settlements, Ceylon, Arabia, Mauritius, France, Italy, and Turkey in Asia.

The principal articles of import are cotton tissues, making up more than a third of the whole value, cotton-twist, and yarn, metals, coal, &c., besides

treasure, which constitutes on an average from one-fifth to one-fourth of the whole value; the principal articles of export opium (on an average one-sixth of the value), raw cotton, seeds, rice, jute, hides and skins, tea, indigo, and wheat. An immense impetus was given to the Indian export trade in raw cotton by the American civil war. In the five years preceding 1854 the average value of this export was only about 2½ millions sterling, in 1864 the value of the cotton exported from Bombay touched 30⅓ millions sterling. Of late years, however, this export has been pretty steadily declining, and it is now under 10 millions in value; but this decline is not entirely attributable to a decrease in production, inasmuch as it is coincident with an important development of the native cotton manufactures.

MONEY, WEIGHTS, AND MEASURES.—Since 1835 accounts are kept in India in *rupees* valued at 2*s.* (or less according to the rate of exchange), subdivided into *annas* 1½ and *pice* ⅓ of a penny. Large sums of money are reckoned by lacs and crores (that is, by sums of 100,000 and 10,000,000) of rupees. An act was passed in 1871 to provide for the ultimate adoption of a uniform standard of weights and measures for India. The primary standard of weight, called the *ser*, is equal to the French kilogramme; the primary standard of measures of capacity is a ser of water of maximum density weighed in vacuo. All other weights and measures, to be notified from time to time in the Gazette of India, are to be integral multiples or sub-multiples of one of these units, and unless otherwise ordered are to be in decimal parts. In the meantime the following weights and measures are in use:—the *maund* of Bengal, of 40 *seers* = 2·054 lbs. avoirdupois; the *maund* of Bombay = 28 lbs. avoirdupois; the *maund* of Madras = 25 lbs.; the *candy* of 20 maunds = 24·3 bushels; the *tola* = 180 grains Troy; the *guz* of Bengal = 36 inches.

PEOPLE, LANGUAGE, &c.—India is inhabited by numerous peoples belonging to several distinct groups of families, speaking numerous dialects, and much blended by the intercourse of different races with each other. In a general way these peoples may be divided into four groups—the forest tribes, the Dravida nations, the Aryans, and the Central Asiatic nations, in which last group are included all those nations which have invaded India from the north-west and settled there since the Aryan immigration. The first-mentioned group make up about 4 per cent of the entire population, and are the rudest and most barbarous among the inhabitants of India. They are scattered over the forest regions in the mountains of northern India, and are found in a more compact body in the hill country of Central India. They form numerous distinct tribes, but their languages are all referred to one family (the Kolarian). The majority of them have now, however, adopted the language, and to some extent the customs and religion of the Hindus. Less than a third of them are now estimated to speak Kolarian dialects. The Dravida nations form the bulk of the population of southern India, and are represented by an isolated tribe (the Santáls) in the south of Bhágalpur division and the north of Bardwán division, Bengal. The Brahuis of Beluchistan (who have partly extended into Sind) are also referred to the same group. Altogether they make up about 15 per cent of

the entire population. The principal Dravida nations are those speaking the Tamil and the Telugu languages, the former comprising about 40 per cent of the Dravida population, or about 6 per cent of the inhabitants of India, the latter about 54 per cent of the Dravida population, or about 8 per cent of the inhabitants of India. The Tamil has the most comprehensive literature and next after Sanskrit it is the most highly developed language of India. The only other important Dravida tribe is that of the Gonds. The Aryan tribes of India are the most easterly members of the Aryan family. The period of their earliest settlement in north-western India (into which region they first immigrated from the countries further to the north-west) cannot be determined, but it is certain that it was many centuries before the Christian era. From the locality of their first settlements they gradually spread first over the northern parts of the peninsula, following the direction of the rivers and the mountain chains, and then along the coasts to the southern extremity. Of the Central Asiatic immigrants the first to form settlements in India (in the Panjáb) appear to have been some Turco-Tatar tribes who entered the country about the first century before Christ. In the beginning of the eighth century the Arabs reached India and had an important effect in modifying the population of Sind. In the eleventh and following centuries, when the country was in great part subject to Afghan dynasties, the population received a large admixture of Afghan blood; and in the sixteenth century the Afghans were followed by new swarms of Tatar tribes who erected the great Mogul empire.

From the mixture of these different elements are sprung the modern Hindus, a term that is used, as a national designation, with no exactness of signification, sometimes excluding and sometimes including the lower tribes of India, while, as a religious designation, it is applied to the adherents of Brahmanism. The Hindus are in general well formed, and, in some parts of India, as in the Deccan and the upper plain of the Ganges, they are even robust, energetic, and hardy: but the chief bodily characteristic of the Hindus is extreme suppleness and flexibility of the animal fibre; rendering them the best runners, climbers, leapers, and wrestlers in Asia, though incapable of maintaining exertion, or resisting fatigue, for any lengthened period. The face of the Hindu is oval; the eyes are uniformly dark brown with a tinge of yellow in the white; and the hair as constantly long, black, and straight. The upper classes, especially in Northern India, and eminently so toward the north-west, are nearly as light in colour as the natives of Southern and Central Europe; and they are also far more handsome and tall than the lower classes. In proportion as we proceed toward the southern extremity of the peninsula, the hue of the skin is observed to darken, until, in the lower castes, it assumes almost the blackness of the negro.

With all the improvements that have been effected by the British in India, the accounts given of the general condition of the Indian people are not altogether satisfactory. According to an official report there is evidence that the Bengal ryots suffer many things and are often in want of absolute necessaries. As a rule they are comparatively better off in eastern Bengal, where rents are not excessive, and the special crop (jute) is remunerative, than in the western

part of the province. In Bardwán the people are poorer than elsewhere, and the people of Assam, judged by an Indian standard, are said to be very well off. In the North-west Provinces after payment of rent the margin left for the cultivator's subsistence is stated to be less than the value of the labour he has expended on the land. In Mysore and Curg wages are somewhat higher than in most other parts of India in consequence of the demand for labourers in the coffee plantations. On these plantations "the labourers are supplied with suitable huts of split bamboo plastered with mud, and as soon as the coffee crop is picked they return to their homes in Mysore and Malabar, to look after their own crops and spend their money, returning to the plantations for the weeding during the monsoon." In Bombay Presidency also wages are comparatively high.

"As to the morals of the people," the same official report that we have been hitherto quoting writes, "whatever may be said of the larger towns, the residents of villages are no better and no worse than the same classes elsewhere; temperate, as a rule, chaste, honest, peaceful, singularly docile, easily governed, and patient."

The following table shows the proportion in which the adult male population is distributed among different employments in some of the provinces of India:—

	Government Service.	Domestic Employments.	Agriculture.	Commerce.	Industrial Occupations.	Labourers.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Bengal, ...	3	6	58	6	11	13
Assam, ...	2	4	68	4	8	5
North-west Provinces,	1	9	55	4	12	13
Oudh, ...	5	6	61	2	12	12
Central Provinces, ...	4	5	57	2	20	10
Berar, ...	1	3	61	8	10	11

All the Hindu languages, as distinguished from the Dravidian and other languages of India, are cognate dialects founded upon the Sanskrit, a language of the Aryan or Indo-European family, which has been extinct as a spoken language for more than 2000 years, and bears a similar relation to the spoken languages of India with that of Latin to the modern European tongues. In the time of Alexander the Great Sanskrit had already been superseded by a vulgar tongue, the Prákrit, founded on it. In ancient Hindu dramas persons of rank are represented as speaking Sanskrit, common people Prákrit. Páli, a dialect of Prákrit, became the sacred language of the Buddhists, their scriptures being compiled in it. It was spread by them into Ceylon and India-beyond-the-Ganges. It is still used for works, chiefly religious, for which a wider circulation is desired. Hindí, the prevailing literary language of the non-Mohammedan population, and more especially the language of the upper provinces of India, is a modernized form of an older dialect, Hinduí, which flourished during the middle ages, having grown out of the Prákrit dialects about the tenth century. Both Hinduí and Hindí are rich in poetical chronicles. Hindustání, a kind of Hindí mixed with Persian and Arabic, is the language of the Mohammedan conquerors, and grew up after the conquest of Delhi at the close of the twelfth century. It is also rich in literature, particularly in translations from the Persian, Arabic, and Sanskrit.

It is the language which has been favoured by the British government for purposes of administration and diplomacy. The Dakhní, a mixture of similar elements, grew up from the same cause in the Deccan. Among the numerous other descendants of the Sanskrit the most important are the Bengálí, Uríya or Utkala, (in Orissa) the Maráthí, the Gujarátí, the Sindhí, and the Panjábí. Throughout India English is coming into use with surprising rapidity as a *lingua franca*, a medium of intercourse with foreigners, and there are already from four to six millions of Hindus more or less acquainted with it.

RELIGIONS.—The religions of India like the races are numerous. The following table shows the proportion in which the principal religious sects are represented in the different provinces, where that proportion amounts to or exceeds one per cent:—

	Hindus.	Sikhs.	Moham-medans.	Buddhists and Jains.	Christians.
Bengal, ...	64	...	32	...	...
Assam, ...	64	...	27	...	...
North-west Provinces,	86	...	14	...	...
Ajmír, ...	88	...	12	...	...
Oudh, ...	89	...	11	...	...
Panjáb, ...	35	6	53	...	...
Central Provinces, ...	72	...	...	...	...
Berar, ...	86	...	...	...	...
Mysore, ...	95	...	4	...	...
Curg, ...	92	...	7	...	...
British Burma, ...	1·3	...	3·6	89	2
Madras, ...	91	...	6	...	2
Bombay, ...	79	...	18	1·2	1
All India, ...	73	...	21	...	·5

From this table it will be seen that the Hindu or Brahmanical religion, the most ancient of the religions of India, is professed by nearly three-fourths of the Indian people. It has passed through many transitions, and has latterly generated numerous sects. The earliest period of the Hindu religion is called the Vedic, from the Vedas or sacred books in which its records are preserved. These exhibit several marked phases of transition. The earliest date of the Vedic literature cannot be satisfactorily determined, either from philological or internal evidence. Its latest writings are not more recent than the second century B.C. Each Veda consists of two parts, the Sanhitá, a collection of mantras or hymns, and the Bráhmana, which contain the doctrinal and ceremonial development of the religion. The latter are always of later date than the former. The oldest Veda, called the Rig-Veda, is considered to be probably the oldest literary document in existence. The worship represented in the greater number of the hymns of the Rig-Veda is that of natural objects: Indra, the cloudless firmament; the Maruts, the winds; Ushas, the dawn; Vishnu, Surya, Agni, and other deities, to whom various attributes of the sun were ascribed. In the earlier Vedas no attempt is made to classify the gods and assign them particular ranks; but in the later ones this became an object of attention, and was done with a manifest regard to unity, a special priority being given to one. A further advance in this direction is made

in the Upanishads, a species of commentary on the Vedas, in which a systematic attempt is made to solve the problems of creation, of the nature of the supreme being, and of his relations with the human soul. The human soul is defined to be of the same nature with the supreme being, and its destiny is determined to consist in reunion with him. The means prescribed for the accomplishment of this destiny are in accordance with the newly elaborated theology rather than with the ancient forms of external worship. It is by the comprehension of itself and of the supreme being that the human soul is to become united with the divine. The necessity for the purification of the soul, in order to its reunion with the divine nature, gave rise to the doctrine of metempsychosis or transmigration of souls.

A new era in the history of Hinduism begins about the time of the Christian era with the composition of the two great epics, the Rámáyana and the Mahábhárata, the latter of which was the product of successive ages. The vulgar creed had by this time experienced the influence of the theological and metaphysical speculations we have adverted to, and had assumed a mystical unity. Brahmá, Vishnu, and Siva, the three emanations of the great soul Brahma, representing respectively the creative, preserving, and destroying principles, had become the leading objects of worship. Brahmá, though considered the most exalted of the three, soon sank out of notice, and the worshippers became divided between Vishnu and Siva. An element of contention was introduced between the worshippers of these deities, and the progress of this struggle is marked in the epics alluded to. The Rámáyána treats Vishnu as the superior deity, the Mahábhárata displays the progress of the rivalry between him and Siva. The doctrine of metempsychosis assumed the fantastic forms indicative of degeneracy. The third or Puránic period of Hinduism corresponds with the period of the middle ages in Europe. The Puránas are discussions upon religion and philosophy, in the form of dialogues conducted by sages. They are designed for popular instruction, and mark a rapid and extensive corruption of the Hindu religion. The epic legends are amplified and distorted. The struggle between Vishnu and Siva becomes more marked and antagonistic. The worship of the latter and of his wife Durgá, which is offensive and revolting, widely prevails over the comparatively innocent worship of Vishnu. The worshippers of Vishnu are called Vaishnavas; those of Siva, Saivas; the worshippers of Durgá, Sáktas. Of the Puránas some are Vaishnava, others Saiva. Sikhism is another heretical form of Brahmanism prevalent in the Panjáb. There are numerous other minor sects of Hinduism and worshippers of particular gods in the Hindu mythology. The Fakirs, or devotees, who give themselves up to penance, filth, and self-torture; and the Thugs (now almost if not quite extinct), who addicted themselves to murder and other crimes in honour of the wife of Siva, may be mentioned. Everywhere Hinduism has sunk into the grossest idolatry, with the practice of which some of the most revolting rites are or were connected. Human sacrifices were sometimes offered up to Hindu deities, and at the procession of Juggernaut (Jagganáth), in which a hideous idol is placed on a tower 60 feet high, which is then drawn along by the people, it was at one time common for religious

devotees to cast themselves in front of the tower in order to be crushed to death by its passing over them. Such practices have, however, been checked under British rule.

Closely connected with the Hindu religion is the collection of laws commonly known as the Institutes of Manu. Various personages of the name Manu are mentioned in the Hindu mythology. Each of them is represented as having re-created the world after the close of a cycle of mundane history. The Institutes are ascribed to the first Manu, who is the first-born of beings. According to Weber this text dates from after the establishment of Buddhism. The actual text indicates, according to Weber, the effort of the Brahmans to uphold their religion against the assaults of Buddhism. It is in these Institutes that the system of caste, which is unknown to the earliest religious books of the Hindus, is first found fully developed. According to this system four castes are recognized, the Brahmans or sacerdotal class forming the principal, the Kshatriyas or warriors coming next in point of dignity, the Vaisyas or mercantile and agricultural class ranking third, and the Súdras or wage-receiving labourers forming the lowest caste. But, in addition to the foregoing, there are a vast number of subdivisions constituting so many different castes, originating in intermarriages of the four great orders, or dependent on the employments, trades, or professions they pursue—some of which (as indeed in Europe) are held to be much more honourable and worthy than others; and, in addition, a very large number amongst the population, particularly in certain districts, are outcasts, or of no rank whatever; and some are so utterly abominable that a Brahman is defiled by coming within their shadow! Purity of caste is incapable of acquisition; and the Márátha chieftains, besides others who, at various times, have acquired sovereign dominion, have still been held to be no more than Súdras, or of the servile class. The whole drift of the Institutes of Manu is to exalt to the highest degree the authority and power of the Brahman. Whether ignorant or instructed he is a powerful divinity. Caste is accounted for by difference of origin; the various castes having proceeded from the mouth, arm, thigh, and foot of the supreme being.

A Brahman Schoolmaster.

Buddhism arose in India (according to the result of the most recent investigations of scholars) about the fifth century B.C. It prevailed there extensively, and being animated by a propagandist spirit it soon spread through all the adjoining regions of Asia. Whether from internal dissensions, which are

known to have prevailed in it, or from persecution, as is generally supposed, or both combined, it became extinct in India before the twelfth century; but it still flourishes in China, Japan, and in the south-eastern regions of Asia, as well as in Nepál, Ceylon, and British Burma. The Jainas, whose religion is a mixture of the Buddhist and the Brahmanical creeds, are still numerous in Hindustan, and particularly in Gujarát. The Pársis or fire-worshippers are descendants of the Persian followers of that religion, who took refuge from Mohammedan persecution on the western coast of India. Their principal emigration was to Súrat, and is supposed to have taken place about the end of the eighth century. They were well received in Gujarát. They are now to be found mostly in the mercantile towns of India, and are most numerous in Bombay. The Mohammedans of India are chiefly its Asiatic conquerors from Arabia, Afghanistan, and Persia. They are said to be more liberal than the Mohammedans of Western Asia. All except from 4 to 5 per cent are Sunnites. There is among them a sect of Fakirs like those of the Hindus. There are also numerous Jews in India. Christianity is supposed to have been introduced about the fourth century by Nestorian Christians from Syria. Their descendants are still to be found, under the name of Thomas Christians, on the south-west coast. The Roman Catholic converts of the Portuguese and other Catholic nations form another Christian sect; and more recently the British, American, and German missionaries have made native converts, but not yet in large numbers. The influence of the missionaries upon the moral condition of Indian society has in a variety of ways been very considerable. The various Protestant missions, though deriving their support from different sects, which in the mother country are to a large extent rivals, co-operate in India in such a manner as to secure the greatest possible effect from their action. The majority of converts are obtained from the lowest Hindu castes. They are most numerous in the district of Tinnevelly in the Madras Presidency. The Roman Catholic missions are now almost entirely confined to old converts. They consist of two divisions, the Portuguese mission under the archbishop of Goa, and the Jesuit mission, which is divided into ten vicariates. There is an Anglican ecclesiastical establishment in India under the Bishops of Calcutta, Madras, and Bombay.

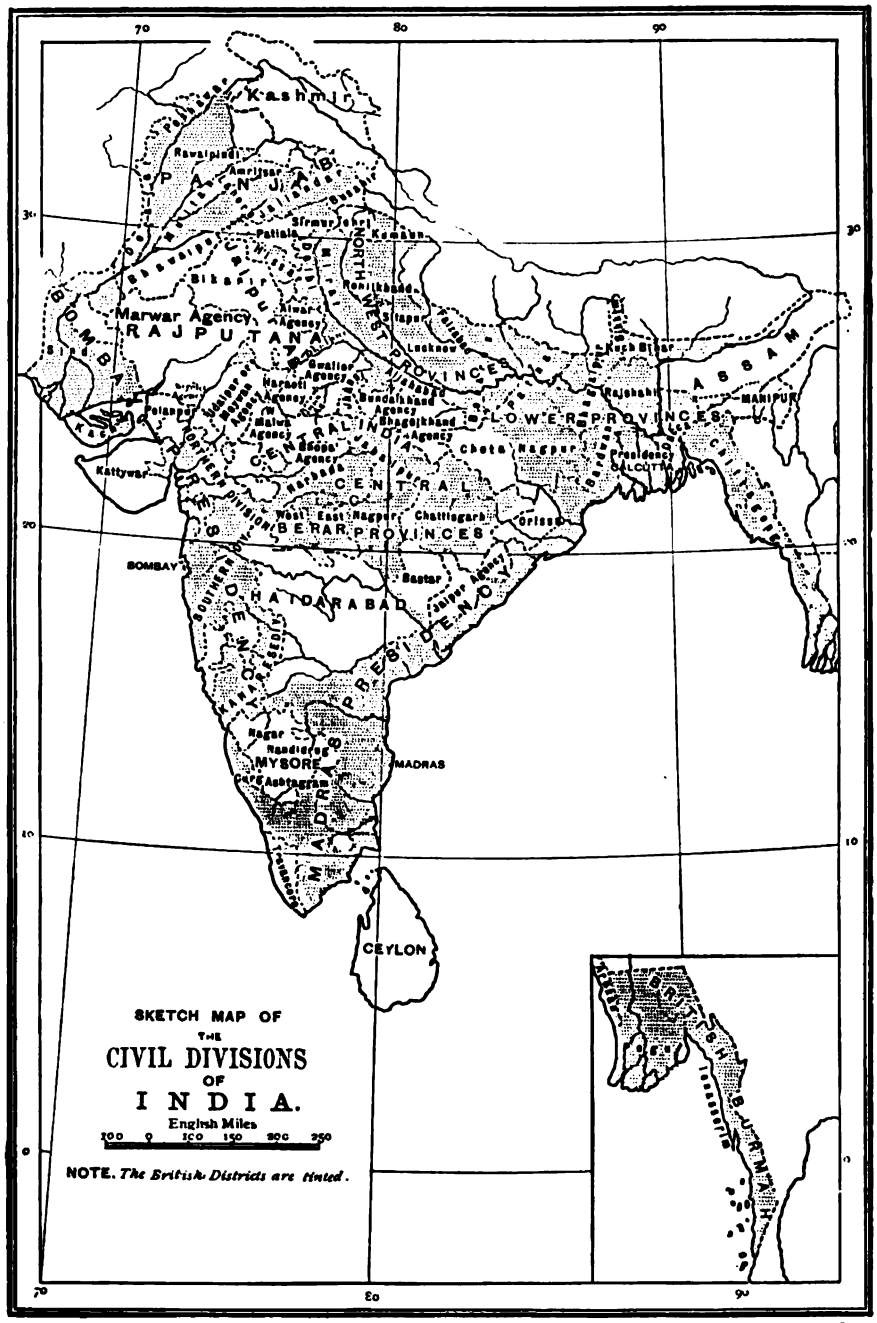
ARCHITECTURE AND ARCHÆOLOGICAL REMAINS.—The architecture of India is naturally divided into two great classes, Hindu and Mohammedan, which are widely distinct from each other. The former may be subdivided into the three classes of Buddhist, Jain, and Brahman. The Buddhist architecture consists of topes (columnar or domical structures designed to mark some sacred spot, or very often to contain relics), monasteries, and temples. As the earliest specimens of Hindu architecture the greatest interest attaches to the examples of this style, of which few now remain. Many of the temples and monasteries are hewn out of the living rock, sometimes in the form of caves. A survey of these was begun in 1873 at the desire of the secretary of state for India, and has led to the acquisition of much interesting information regarding them. There are between forty and fifty groups of them in all, the great majority of them belonging to the Bombay Presidency and contiguous districts. They occur

chiefly in hill ranges, and belong, not only to the Buddhist sect, but also to the Brahmans and Jains. The Buddhist examples are the oldest, some of these dating from about the end of the third century B.C., while others reach down to about the seventh century of our era. The Brahmanical remains of this class ranging from the fourth to the eighth century, are the next in order of time, and the Jaina remains the latest. Notable among Buddhist remains are the caves of Ellora and Ajanta near Bombay, and the Sanchi Tope, near Bhilsa in Central India. The principal Jain works are in Rájputána, Gwaliár, and Bundelkhand. The Brahman style extended over a very long period. The early structures are few in number; those of later date are very numerous, but their exact age is not

The Táj-Máhal, Agra, from the River Jamna.

easily defined. The Mohammedan architecture may be broadly divided into the earlier and later Pathán and the Mogul; the earlier Pathán extending from A.D. 1193 to 1451; the later Pathán, from 1451 to 1554; and the Mogul from 1554 to 1759. The great difference between the early Pathán and the later Mogul, as great as that between early Norman and Perpendicular, is evident in a comparison of the majestic beauty of the Kutb Minar (A.D. 1220) and of the stern grandeur of the fort of Tughlakábád (both in the neighbourhood of Delhi) with the chaste elegance of the tomb of Táj-Máhal at Agra (A.D. 1630). In sculpture, the Hindu relics consist chiefly of bas-reliefs and statues, Jain symbols—animal, fish, or flower—of the 24 hierarchs of their faith; and Brahman representations of Brahman divinities.

ADMINISTRATION.—The government of the Indian Empire is regulated by the act for the better government of India passed in 1858, by which all the territories formerly possessed by the East India Company are transferred to her majesty, and all the powers of the said Company exercised in her name, all taxes being received in her name and disposed of for the purposes of the government


70
80
90
30
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Kashmir
PUNJAB
Rawalpindi
Amritsar
Simla
Patiala
Kangra
Sirmur
Jhansi
Kanauj
Bareilly
Bikaner
Marwar Agency
RAJPUTANA
Kotah
Agra
Meerut
Lucknow
Benares
Allahabad
Bundelkhand Agency
Bhagalpur
Chota Nagpur
Rajshahi
Kuch Behar
ASSAM
MANIPUR
LOWER PROVINCES
Presidency CALCUTTA
Orissa
Chattisgarh
Nagpur
Berar
Raipur Agency
Bastar
Kattywar
BOMBAY
HYDERABAD
MADRAS
MYSORE
Bangalore
Coimbatore
Trichinopoly
Madura
Tinnevelly
CEYLON
BRITISH BURMA
SKETCH MAP OF
THE
CIVIL DIVISIONS
OF
INDIA.
English Miles
200 0 100 150 200 250
NOTE. The British Districts are tinted.

of India alone. Her majesty's secretary of state for India is now invested with the powers formerly exercised by the Company, or the board of control, and he must countersign all orders and warrants under her majesty's sign-manual. He is assisted by a council of fifteen members, the greater number of whom must be persons who have resided ten years in India, and have not left it more than ten years previous to their appointment. The secretary for India fills up vacancies in the council as they occur. The executive authority in India is vested in the governor-general or viceroy appointed by the crown, and acting under the direction of the secretary of state for India. The governor-general in council has power to make laws for all persons whether British or native within the dominions subject to the British crown, and for all British subjects residing in allied native states. His council consists of five ordinary members and one extraordinary member, namely the commander-in-chief. The ordinary members preside over the departments of foreign affairs, finances, the interior, military administration, and public works. The ordinary members of the council, the governors of presidencies, and those of provinces are appointed by the crown. The lieutenant-governors are appointed by the governor-general subject to the approval of the secretary of state. The subordinate administration of India is carried out by a large body of functionaries of various ranks, the higher of whom receive their appointments through competitive examinations held in this country. These form what is called the *covenanted* civil service as distinguished from the *uncovenanted* civil service, consisting of natives and Eurasians (persons partly of European partly of native parentage) appointed in India. The native states are generally governed by hereditary princes who exercise despotic power. They are more or less controlled, however, by British influence, a British resident agent or commissioner being stationed at their courts.

In the three presidency towns British law is administered, to which both Europeans and natives are subject. In the rest of India only Europeans are subject to British law. In general Mohammedan law is administered to the Mohammedan population, and Hindu laws to the Hindus; but in certain cases the judge may substitute for these the government regulations. Zillah courts, both European and native, are held in every district of British India, and there are native police-courts in each village. The jurisdiction of the native zillah courts extends to cases amounting to 1000 rupees, or on the recommendation of a European judge to 5000. The jurisdiction of the European zillah courts extends to £2000, and they try appeals from the native courts. Criminal cases are tried by jury in the superior courts, and natives are eligible as jurors. Under British rule the harshness of the Mohammedan law has been modified and some Hindu customs opposed to humanity abolished. Slavery was abolished in 1843; the Meriah sacrifices of the hill tribes of Orissa were abolished in 1845; satí or widow-burning was abolished by Lord William Bentinck in 1829.

In 1842 an act was passed to enable the inhabitants to form municipalities, but as it proved ineffectual, three acts were passed respectively in 1850, 1856, and 1868 to render the formation of various orders of municipalities compulsory, when government saw fit to enforce them. Nearly a thousand municipalities,

with an aggregate population exceeding 14,000,000, have been formed in the different presidencies under these acts, and local taxation for police and local improvements has been enforced. Local self-government has thus been extensively introduced, but in some places the pressure of local taxation has been found to be severe.

REVENUE AND EXPENDITURE.—The most important head of revenue is the land-tax, which yields about two-fifths of the whole. The next in importance are opium yielding about one-sixth, salt yielding one-eighth, stamps, customs and excise, each yielding more than one-twentieth, tribute of native states, forests, law, justice, &c., the post-office and the mint, and assessed taxes.

The land revenue is not only the most important item of the government income, but involves the most complicated and difficult question with which the British rulers of India have had to deal since their occupation of the territory, that of the tenure of land. In Bengal the land was made over by permanent settlement to the zemindars or district governors in 1793 on payment to government of ten-elevenths of the existing rental. The value of many of the estates has since been doubled, but the government revenue of course remains stationary. Previously to this settlement land could not be exchanged by sale, as no right of property was recognized in it by government. Stipulations were made in the settlement as to the amount of rent to be paid to the zemindars by the actual cultivators. These stipulations failed, however, to effect the object intended, namely, to preserve for the cultivator security of tenure on reasonable terms, and their failure has caused one of the principal difficulties with which the Bengal government has to deal. The stipulations were not definite in their character, but were merely based on the presupposition of the tenant's right to a continued occupancy of the land as long as he paid to the zemindar the customary rent. But as the settlement put the zemindars virtually in the position of landowners, it became more and more difficult in process of time to determine the rights of the cultivators as against them, and more particularly to fix the amount of the "customary rent" in virtue of the payment of which the tenant's right of occupancy was to be secured. The zemindar of Bengal in fact came to hold almost exactly the position of an English landlord having under him a number of tenants at will. Various attempts were made by the legislature to check this tendency. The most important of these was an act passed in 1859 which was intended to settle the relations of landlord and tenant for the whole of the Bengal Presidency, and which is still in force in the lieutenant-governorship of Bengal and in the Central Provinces, though it has been superseded elsewhere. The main principle established by this law was that undisturbed occupancy during a period of twelve years should be the condition for acquiring immunity from arbitrary ejectment or enhancement of rent. In consequence of this law cultivators in Bengal became divided into two classes, the privileged and the unprivileged holders. The former can be ejected only for non-payment of rent, and cannot have their rent raised except on a decree of court. The latter are tenants at will. There are no statistics to show what proportion the former bear to the latter in Bengal; in the Central Provinces it is nearly as three to five. The experience of years

has shown that the land laws of Bengal are still in need of revision. Apart from the fact that there is still so large a proportion of tenants at will, whose position is generally one of extreme poverty in consequence of the high rent they have to pay, the effect of the law of 1859 has been to produce an antagonism of interests between the landowner and the tenant. The landowner resorts to every means that the law permits to prevent the tenant from acquiring occupancy rights under that act, and even takes advantage in many cases of the ignorance and helplessness of the tenant to adopt illegal means of doing so. In addition to that a practice exists in some parts of Bengal, called the *thikadári* system, under which the hardships of the tenant are still further increased. Under this system the zemindar lets out his rights to a contractor for a term of years, and the contractor is but too ready to make use of the most unsparing measures of oppression in order to make the best of his bargain. Enactments for the prevention of such abuses are at present under the consideration of the Bengal government.

In the North-west Provinces the tenure of land is settled on the basis of the system of the Emperor Akbar. The distinctive feature of this system is that the village community, not the individual proprietor or cultivator, is held responsible for the government rent. Akbar, however, recognized no proprietors, while the middlemen by whom the rents are collected from the cultivators are recognized by the British government as proprietors of the land. In Oudh the talukdars were dispossessed of their proprietary rights in 1857, and after the mutiny their whole property was confiscated. This was found to have been a mistake, and they were reinstated in 1859, and recognized as permanent and hereditary proprietors, with reservation of some rights to the cultivators, and a half of the gross rental to government. Liberty was given in 1869 to revert to Mohammedan law, and there are still various tenures in Oudh. In the Panjáb the principle of the North-west Provinces was introduced. The old village communities were there in much better preservation than in the provinces, hence the bulk of the proprietors are actual cultivators, and the assessment is distributed by the village elders.

In the Madras Presidency what is known as the *ryotwari* system, introduced by Sir Thomas Munro, prevails. The settlement is made directly with the ryot or cultivator, who is secured in possession as long as he pays the government tax. The waste lands may be taken by the first comer on the same terms. In Malabar, however, there are proprietary landlords. The Malabar system is, that after deducting 20 per cent for reaping, the landlord receives one-third of the remaining proceeds, two-thirds going to the cultivator for expense and remuneration. The landlord's one-third is divided between the proprietor and the government. There are in this presidency also, however, many great zemindars, whose position is similar to that of those in Bengal. Under them the cultivators occupy the land as tenants, and of late years a doubt has arisen as to the legal status which such tenants hold. Till 1871 zemindari tenants in Madras seem to have enjoyed nearly the same rights as ryots holding directly under government. The zemindar was believed not to

have the right to enhance the rent or deprive the tenant of his holding except in special cases. But a decision of the High Court in the year mentioned appears to have declared it to be the law that a zemindar has a right either to increase a tenant's rent or to evict him at pleasure, unless it can be proved that there is a contrary custom applying to the special case. This state of the law is regarded as likely to be detrimental to the interests of a large class of cultivators whose position it is important to preserve, and the commissioners appointed to inquire into the famine in Madras in 1877–78 urge that it is advisable to pass a law declaring the *primâ facie* right of a tenant to the fixed occupancy of his land, and throwing upon the zemindar the burden of proving that in any special case no such right exists, either in consequence of an express stipulation in a contract, or of a clearly proved custom of eviction.

In Bombay the settlement of the land was made generally on the ryotwari principle, and the majority of the landholders are consequently peasant farmers paying land revenue direct to the government. There are no great landholders corresponding to the zemindars of Bengal and Madras, but there are certain classes of landholders whose land is cultivated by tenants, and by the provisions of the Bombay revenue code of 1879 the same fixity of tenure has been conferred on old tenants of this class as is enjoyed by tenants holding immediately from the government. The old tenants so privileged are in most cases those as to the commencement or intended duration of whose tenancy there is, by reason of antiquity, no satisfactory evidence; in Konkan (where the landlords are called *khotes*), they are those who at the time of the passing of the special act affecting this district (passed in the same year as the code above mentioned), had actually occupied or cultivated the land continuously from a time previous to the commencement of the revenue year 1845–46. This, however, is not the only class of tenants in the Bombay Presidency, for the security of tenure enjoyed by the holders under government has encouraged the growth of a class of sub-tenants holding from the government ryots. This class is not recognized by the government. They have no permanent interest in the land, and in almost all cases pay such high rents as to be always in a state of poverty. In British Burma the cultivators are the proprietors, and the land-tax is light.

Opium is a government monopoly, and the price paid for it has to be deducted from the proceeds of the sales. There are two opium agencies, one at Patna and another at Ghazipur, which contract with the cultivators in the Patna division of Bengal, Oudh, and the North-west Provinces to sell their produce exclusively to government. In the native state of Malwa opium is grown free; but it is only allowed to be exported from Bombay, and is subjected to an equalizing export duty. The government of India has frequently contemplated the abolition of the opium monopoly, and the substitution of a customs duty; but the difficulty of levying it has hitherto prevented the adoption of this plan. Formerly the salt-tax varied in amount in the different provinces, but in 1877 it was equalized, with the result of lowering it in northern India and increasing it in southern. The collection of an excise duty on salt entails a very heavy expense from the number of frontier places from which the article may be introduced. In the

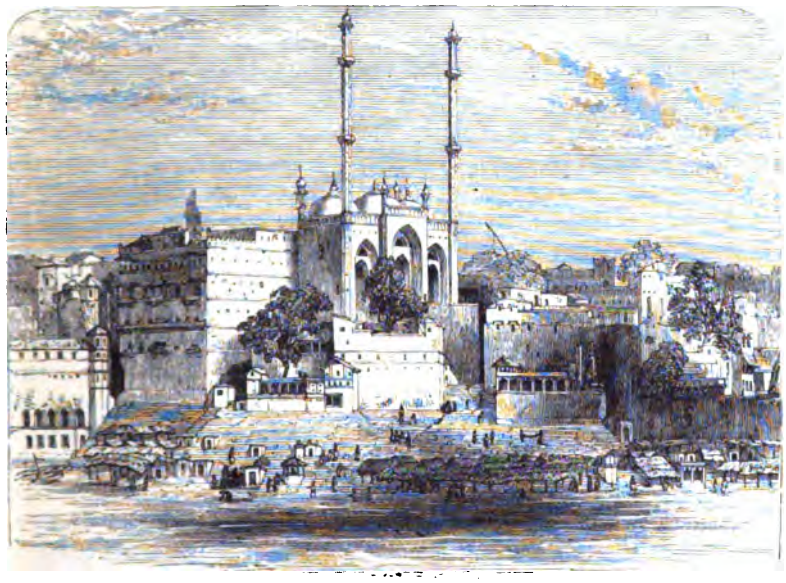
North-west Provinces and the Panjáb there is a salt barrier of 2508 miles, consisting of a hedge partly green and partly dry. Another customs' line on the Indus is 982 miles long.

In 1877 it was determined to recognize expenditure on famine relief as part of the ordinary and not of the extraordinary expenditure, and to meet this addition to the average annual expenditure by raising an additional revenue of about £1,500,000 a year. In order to do this an addition was made to the land-tax in the provinces not visited by famine, a new trades tax or license was imposed, and a small increase of revenue was obtained from the readjustment of the salt-tax above mentioned. One-tenth of the expenditure of India is in payment of interest on debt and other obligations. One-fifth is paid in England (on account of stores, guaranteed railway interest, surplus railway profits, &c.). In all the provinces of India except those directly under the governor-general there is a considerable surplus of revenue, which goes to defray the general cost of the government of India, including the military charges for all India except Madras and Bombay presidencies.

The military force in British India is composed partly of British and partly of native troops in the proportion of one of the former to two of the latter. The native troops are officered by Englishmen. The British force is stationed chiefly in the Panjáb and the valley of the Ganges; a large frontier native force is also kept in the Panjáb to guard against invasion. Where English troops are stationed there is always a larger native force, and in many of the smaller and less important posts there is a native force only. There are a number of hill sanitary stations provided for the different divisions of the forces, such as Dárjiling for the Bengal troops, Naini Tal for Oudh and Rohilkhand.

EDUCATION.—A system of education for India was inaugurated in 1854 in conformity with the instructions of the home government, and Sir Charles Wood's despatch of 19th July, 1854, is the basis on which the educational system still rests. The fundamental principle of the despatch was that the native languages should be made the medium of communicating European knowledge. The scheme consisted of two parts, one for the higher education of India, the other for diffusion of elementary knowledge. The scheme for the higher education was to form universities in the various presidencies, with the usual governing bodies, on the model of the University of London, that is, with power to examine and confer degrees, but not to teach. The universities were to affiliate all schools and colleges capable of supplying a sufficiently high standard of education; the zillah or middle-class schools were to prepare for the colleges, and the whole were to be linked together by a system of grants in aid adapted to bring the schools within the system. These grants were to be given in proportion to local contributions, and it was anticipated that ultimately the government would be entirely relieved by the local authorities of the charge of the schools. The elementary scheme contemplated the establishment of English and vernacular schools throughout India. The various schools were to be incorporated in the system irrespective of the religious creed taught in them. By the end of 1859 the three universities had been inaugurated, normal schools created, and the

whole system of higher education put in working order. In the Calcutta University English was taken, contrary to the plan of the despatch of 1854, as the basis of instruction, and as this seemed to the lieutenant-governor, Sir William Muir, to be taking too high an aim, he collected funds for a college and university at Allahábád, which was sanctioned in July, 1872, and has received the name of Muir University College. It is intended to affiliate the vernacular schools, and afford the means of education for undergraduates to pass their first arts examination. The highest oriental teaching in India is given at the Sanskrit College of Benares, founded in 1792. With elementary education much less progress has been



Benares, from the River Ganges.

made, and for that of girls little has been done beyond making a beginning. The various missionary societies at work in India devote a large share of their attention to education. In 1878 the total number of pupils attending any educational institution in British Burma was equal to 24 for every thousand of the population; in Curg, the proportion was 16; in Bombay presidency 15; in Ajmír 13; in Berar 12; in Bengal and the Panjáb 10; in the Central Provinces 9; in Assam, the North-west Provinces, Mysore, and the Madras Presidency 8; and in Oudh 6.

RESULTS OF BRITISH RULE IN INDIA.—Under the title of *What the English have done for the Indian People* an instructive survey of the results of British rule in India is given in two articles contributed to the *Cornhill Magazine* (Jan. and Feb. 1880) by Dr. W. W. Hunter, director-general of statistics to the Indian government; and from these articles we take the information contained in the present section. Summarizing some of the outward and most visible

results of a century of British rule Dr. Hunter says:—"As regards the northern or Himalayan frontier of India, the wild hill tribes are no longer invaders, but are employed as loyal soldiers or border police. As regards the southern frontier of India, the sea, the pirate races have been converted into cheap and excellent seamen. Indian waters are now as safe as the English Channel, and the Indian navy, having finished its work, is disbanded. As regards internal disturbances, banditti are unknown, breaches of the law are rarer in India than in England, and the special department which was created to deal with the old special crimes of India now finds no more work to do within the British provinces. Famine, which in the last century was considered beyond any help of man, has been accepted as the great administrative problem of our day; and a vast organization of public works, state relief, and private charity, is interposed between the Indian races and the merciless calamities of nature. As regards the reclamation of waste land, formerly the local hero, or eponymous village-founder, was the man who cut down the jungle; now a special branch of legislation is required to enable the government to conserve what jungle remains, and to plant fresh forests."

A few details of the differences between the present and the past will help to give the reader a better understanding of the significance of the preceding summary. First, as regards the northern frontier. "The Himalayan mountains," writes Dr. Hunter, "instead of serving as a northern wall to shut out aggressors, formed a line of fastnesses from which the hill races poured down upon the plains. For fifteen hundred miles along their foot stretched a thick belt of territory which no one dared to cultivate. This silent border-land varied from twenty to fifty miles in breadth, and embraced a total area of 30,000 square miles, which yielded no food for man, but teemed with wild beasts who nightly sallied forth to ravage the herds and hamlets in the open country beyond. Such a border-land seemed to the miserable villagers on the plains to be the best possible frontier; for its dense jungles served as some sort of barrier against the invasions of the wild Himalayan races, and it bred deadly fevers which made havoc of armies that attempted a passage through it. Indeed, the ancient Hindu laws of Manu, written more than 2000 years ago, ordained, as a protection to a royal city or kingdom, a belt of wilderness twenty miles around it in place of fortifications, and the peasantry of Northern India were thankful in the last century for the tract of disease-laden jungle, which to a certain extent defended them from the savage hillmen beyond." Since the subjugation of these hillmen the peasantry have spread themselves out upon the fertile depopulated lands. "While the natives of India have pushed their rice cultivation towards the foot of the mountains, English capitalists have dotted their slopes with tea-plantations. Not less than 13,000 square miles of border territory have been reclaimed, and yield each year sixteen millions sterling worth of produce."

Again, as regards the sea Dr. Hunter writes:—"On the Bay of Bengal, the pirates from the Burmese coast sailed up the great rivers, burning the villages, massacring or carrying off into slavery the inhabitants. The first English surveyor, in the second half of the last century, entered on the maps a fertile

and now populous tract on the seaboard as bare of villages, with the significant words written across it, 'depopulated by the Mughs,' or sea-robbers."

With reference to the banditti we learn that "the Council at Calcutta reported in 1772 that organized bands of robbers were burning, plundering, and ravaging the interior districts of Bengal in bodies of 50,000 men." These organized robber-bands formed a class entirely by themselves. "'The *Dakaits* or gang-robbers of Bengal,' so runs a State paper written in 1772, 'are not, like the robbers of England, individuals driven to such desperate courses by sudden want. They are robbers by profession and even by birth. They are formed into regular communities, and their families subsist by the spoils which they bring home to them.' These spoils were frequently brought from great distances; and peaceful villages 300 miles up the Ganges lived by housebreaking in Calcutta. . . . Another special crime was *thagi*, or strangling dexterously performed by bands of professional murderers disguised as travelling merchants or pilgrims. The *Thags* and *Dakaits*, or hereditary stranglers and gang-robbers, thought none the worse of themselves for their profession, and were regarded by their countrymen with an awe which in the last century could hardly be distinguished from respect." "But," says Dr. Hunter, "all this has now changed. Strange as it may sound, there is now less crime in India than in England. That is to say, for each million persons in England and Wales there are about 870 criminals always in gaol. In India, where the police is very completely organized; there are only 614 prisoners in gaol for each million of the population."

Finally, as to the ravages of famine in last century, in 1770 Bengal was visited by one of the most terrible famines on record, causing a loss of life estimated by Warren Hastings at not less than one-third of the inhabitants, or probably about ten millions of people. "In that terrible summer of 1770, in which ten millions of peasants perished, only £9000 were distributed to aid the starving population of Bengal. A century later, in the much milder Bengal scarcity of 1874, the British Government spent close on four millions sterling, and during the last five years, ending 1878, it has devoted over fourteen millions sterling to feeding its people during famine."

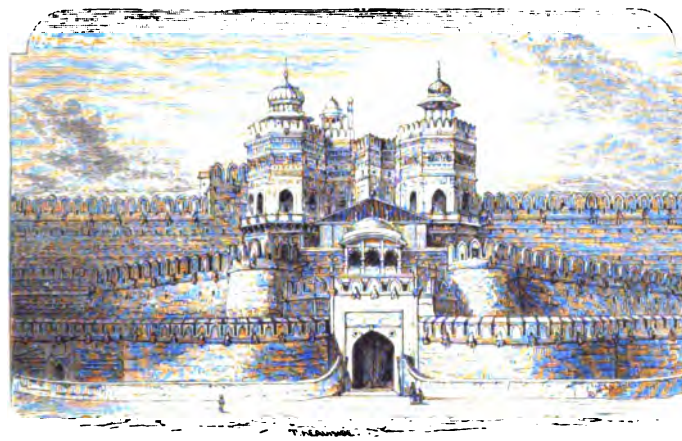
Among the less obvious results of British rule to which Dr. Hunter calls attention are the growth of commercial cities, the development of manufacturing industries, the improvement in the administration of civil justice, the taking of education out of the hands of the priests and making it an instrument for emancipating the people from priestly bondage, and the development of local self-government.

One of the indirect results of British rule cannot be contemplated with the same satisfaction as those which have just been adduced. The one alluded to is the great increase in the population that has taken place and is still going on. Although there is no means of determining the exact rate at which the population of India is increasing, there is every reason to believe that it is doing so in some provinces with extraordinary rapidity. According to the estimate formed of the population of the Bengal province in the early years of the present century that province was found to have trebled its population between that date and the

census of 1871–72; and though it may be the case that the estimate on which this comparison was based was much too low, there can be no doubt that the actual increase must have been enormous. The reason of this rapid increase is the prevalence of early marriages, in which respect India presents a striking contrast to most European countries and districts in which, as in India, the population is mainly agricultural and small holdings are the rule. In the parts of Europe referred to (such as France and Tuscany) the proportion of unmarried persons is great and marriages are for the most part late. In India, on the other hand, the prevalent religion (Brahmanism) makes early marriages a sacred obligation, and the common age for marriage is from twelve to sixteen. The average number of children that grow up to maturity for each marriage is less than in this country (though greater than in France), a result ascribed chiefly to excessive infant mortality. Before the advent of British rule the causes tending to a rapid increase of population were in just as active operation as they are at present; but then the population was kept down by the ravages of foreign invaders, by internal disorders, by famine and pestilence, and by the prevalence of infanticide. All these checks on the growth of population are now, however, either entirely removed or greatly mitigated in their action, and some outlet has consequently to be found for the increasing numbers of the people. This has been to some extent provided, as we have seen, partly by the settlement of districts that formerly lay waste, partly by the growth of manufacturing industries, partly in other ways; but it seems probable that in future years this tendency to a rapid increase of population will present economic difficulties that will be still more severely felt than they have been hitherto.

HISTORICAL SKETCH.—Of the early history of India nothing certain is known beyond what can be collected regarding the state of civilization among the Hindus from their oldest sacred writings. (See above, Religions.) The first foreign king regarding whom there is historical evidence of his having had connection with India is the Persian king Darius, who in the sixth century B.C. made the territories on the banks of the Indus tributary. In the fourth century B.C. India was invaded, as is well known, by Alexander the Great, who penetrated a little to the east of Lahore and left behind him bodies of Macedonian settlers. The first extensive native kingdom of which anything is known historically is that founded in the beginning of the third century B.C. by Chandragupta, who expelled the foreign settlers and embraced the whole of Northern India under his sway. His grandson was the celebrated Asoka (263–226 B.C.), through whose fostering care the religion of Buddha received a wide extension in the peninsula. (See CEYLON, Religion.) In the first century B.C. great political changes were brought about and permanent alterations made in the distribution of the population of Northern India by the invasion of Turkish-Tatar tribes who founded a number of kingdoms in the Panjáb. The next great event in the history of India was the establishment of the Arab power in north-western India in the beginning of the eighth century A.D. In the beginning of the eleventh century the Arab kingdom fell a prey to the sultan Mahmud of Ghazni, the founder of the Ghaznavide kingdom. This kingdom lasted till the

close of the twelfth century, when it was overthrown by another Afghan (or Pathán) dynasty, known as the Ghor dynasty, which had its capital at Delhi. A succession of Pathán dynasties followed, and the last of these was overthrown by the Mongol invader Baber, who by his victory at Pánípat in 1526 laid the foundation of the great Mogul (Mughal) empire, which, like the preceding Afghan dynasties, had Delhi for its centre. This empire attained its greatest pitch of power and glory under Akbar (1556–1605), who extended his sway both to the east and west coast, only Southern India remaining unreduced by him. From the beginning of the eighteenth century the empire was in its decline, and in 1803 it virtually came to an end with the surrender of Delhi to the English, although a titular Mogul sovereign continued to exist till 1857. In Central and Southern India an important dominion was established by the Gonds in the fifteenth century, and in the seventeenth century this gave place to the still more important dominion of the Márathas. The founder of this latter dominion was Sivadji, who at his death in 1682 merely ruled over the Konkan on the west coast, but under his successors a wider dominion was founded with Sátára for its capital. In the middle of the eighteenth century the power of the Márathas was at its highest. All Malwa was by that time subject to Mártha princes, and in 1758 the Márathas conquered even Multan and Lahore. These successes, however, brought the Afghans once more into the land, and in 1761 the Márathas were defeated at Pánípat by Afghan invaders, and this defeat put an end to their power in the north-west of India. Early in the present century the power of the Márathas in Central India also was destroyed by the British.



Gateway of the Fort at Agra, constructed by the Mogul Emperor Akbar.

The first among European nations to form settlements in India was the Portuguese, who acquired considerable possessions on the west coast early in the sixteenth century. These possessions were not, however, long retained in their full extent, and were gradually reduced to those which they still hold (Goa, Daman, and Diu). The Portuguese were followed by the Dutch, English, Danes, and French, all of whom formed trading companies to the East Indies (in 1594, 1600, 1616, and 1664 respectively), and planted settlements in India itself.

The Dutch and Danish settlements never attained to much importance, and the former passed about the middle of last century, the latter by purchase in 1845, into the hands of the English. The first English settlement was formed at Súrat in the Bombay Presidency in 1613; in 1639 the grant of a small territory round Madras was obtained from one of the native rájas; and the first permanent British settlement at Chatanatí, on the site of the present city of Calcutta, was made in 1690. The rapid extension of the English power in India was consequent on the outbreak of war in Europe between France and England in 1742. The two powers then came into collision in India also, and in the struggle that ensued England was ultimately victorious. The influence of the French in India was completely destroyed, while the English East India Company acquired large tracts of territory from the native princes who had become involved in the contest between the two European powers. The most important of these acquisitions was due to the victory of Clive at Plassy in 1757 over the Nabob of Bengal, in consequence of which the lower valley of the Ganges fell into the hands of the Company. In the possession of this territory (Bengal and Bahar) the Company was formally confirmed by the Great Mogul in 1765; and since that date the British have acquired possession or control of one province after another, until they have become the paramount power throughout India. In the Peace of Paris in 1763 the French had a few unimportant places in the country restored to them, and these they still retain, though the French East India Company was dissolved in 1770. In 1773 the English East India Company was first brought under the control of parliament. Various subsequent acts made the control of parliament more effective. In 1814 the Company was deprived of the monopoly it held of the trade with India, and in 1858, after the Indian mutiny, the government of India was, as elsewhere mentioned, vested directly in the crown.

PRESIDENCY OF BENGAL.

PROVINCES UNDER THE GOVERNOR-GENERAL.

AJMÍR[1] and **MHAIRWÁRA** are two small states contiguous to one another inclosed by the native states of Rájputána. They are both traversed by ridges of the Arávali Mountains, but the south-east of Ajmír is level and sandy. The cultivation is dependent on irrigation, for which tanks are scattered over the surface. The agricultural products are cotton, wheat, millet, rice, and opium. The mineral products are important, iron being abundant in both states, but especially in Mhairwára. The inhabitants are mainly Hindus. The Mhairs of Mhairwára were long a wild and unsettled race, but under British rule have applied themselves to peaceful occupations. Both districts came under British

[1] The provinces printed in bold type are under British administration, those in ordinary Roman capitals are native states.

rule in 1818. The chief town is Ajmír (26,000), in the immediate neighbourhood of which is a rich lead-mine.

BERAR is the name given to the districts assigned to the British by the Nizám of Haidarábád in 1853. The province consists of a hilly region in the south covered by the Ajanta Hills, and a slightly undulating valley in the north from 40 to 50 miles in breadth, covered with a rich black soil bearing excellent crops of cotton and jowári *(Sorghum vulgare)*. After the harvest this valley presents to the eye only a monotonous expanse without water and without vegetation. The cultivated land of the province is about one-half of the whole area, but about one-half of the remainder is capable of cultivation. Great improvement has been effected on the condition of the people of this province since it came under British administration. Neglected works of different kinds have been restored, new ones have been constructed, and crime repressed. The "sovereignty" of the province is recognised by treaty as still belonging to the Nizám, to whom the surplus revenue is paid. Part of the revenue is devoted to the maintenance of a body of troops called the Haidarábád contingent, which forms part of the British Indian army, but is also at the disposal of the Nizám. The dialect spoken in the province is Máráthí. The headquarters of the British administration is Akola in West Berar, with a population of 15,000; but the most populous towns are Ellichpur (28,000) and Amráoti (23,000) in East Berar. All these places have a considerable trade in cotton.

CURG (Kodagu or Kodumale, steep mountains) is an ancient principality in southern India between about 12° and 13° N. lat. The country in general is extremely rugged, and covered with forests, in some parts abounding in sandal and other valuable woods, but in others overrun with jungle, the resort of elephants and beasts of prey. In its climate and products it resembles Mysore, but coffee is the chief product. Tea, cinchona, and cotton are also successfully cultivated in several localities. Great numbers of cattle are reared. The people are a brave race of fine physical appearance. Merkára (Madikéri), the chief town, with a population of 8000, is beautifully situated at the height of 3700 feet above sea-level. The government of the principality was assumed by the British in 1834 in consequence of the misgovernment of the reigning rája.

MYSORE (Maisúr) is a principality of Southern India between about 11° 30′ and 15° N. lat. It is inclosed by mountains on three sides: on the east and west by the Ghâts and on the south by the Nílagiri Hills, and consists in the main of a table-land with an elevation of 2000 feet or more. A striking feature is presented by the numerous isolated hills, locally called *drugs*, with which the surface is studded. These mostly consist of bare rounded masses of granite about two miles in circumference, and are usually fortified with tiers of works ascending one above the other from the base to the summit. The climate, on account of the elevation, is temperate. The principal products of the state are timber, a small and dark kind of millet called *ragi*, rice and other cereals, sugar, coffee, and cardamoms. All the mountain sides are clothed with forests, which also extend from seven to ten miles from their base. The most important trees of the forest are ironwood, blackwood, teak, sandalwood (a government

monopoly), a tree called wild jack (*angeli*), &c. Ragi forms 66 per cent of the whole cultivation of Mysore, rice about 24 per cent. Cardamoms are a specialty of this principality and the adjoining state of Curg. They are grown in the forests on the mountain sides, the ground being always cleared by the felling of some gigantic tree growing in such a situation that it falls to the bottom of the slope on which it stood and carries several other trees along with it. Throughout the principality there are many tanks large and small used for irrigation, and from these a considerable part of the revenue is derived. Education is making satisfactory progress. There is a branch examination in connection with the Madras University held annually at Bengulúr in December. The principal manufactures are woollen shawls, especially a kind called *cumlies*, worn by the common people in the west of India, carpets, and cotton goods of inferior quality. The dialects chiefly spoken are the Kanarese, Telugu, and Hindustáni.

The capital of the principality is Mysore (58,000), in the south, situated at the height of 2450 feet above sea-level. It is regularly built and has its houses intermingled with trees and temples. Separated from the town by an esplanade is the fort built in imitation of the European style, and to the south of the fort about five miles from the city is Mysore Hill, on the summit of which is the British residency. By far the most populous town in the principality is Bengulúr (143,000), the headquarters of the British forces stationed in Mysore. It is situated in the east of the state, and is the terminus of a branch line of railway communicating with the main line from Madras to Calicut. Its climate resembles that of England, and in its markets almost every kind of English and Indian fruit and vegetable is exposed for sale. There is a large trade in silk and cotton goods, sugar, betel-nuts, spices, &c. No other town in the principality has a population exceeding 12,000.

Mysore was under British administration from 1834, when a native prince was deposed for misrule, till the 25th of March 1881, when the principality was formally handed over to a native máhárája, who had been educated under the care of the British.

RÁJPUTÁNA is the name of a large tract in Western India composed of eighteen native states subsidiary to the British, besides the provinces of Ajmír and Mhairwára now under British administration. The names of the native states are Bikánír, Jaisalmír, Márwár or Jodhpur, Alwar, Bhurtpore (Bharatpur), Dholpur, Karauli, Jaipur, Kishangarh, Tonk, Bundi, Kotah, Jhaláwa, Partábgarh, Banswara, Dungarpur, Udaipur, and Serohí.

A great portion of the surface of Rájputána in the west is desert, and part of it wholly destitute of inhabitants, water, and vegetation. The whole of the soil is remarkably saline, and in the west there are many salt springs and salt lakes. In many places the surface is covered with the cactus and other prickly shrubs, but except in the hilly parts (traversed by the Arávali range) the territory is almost destitute of trees. In the more fertile states of eastern Rájputána abundant crops of corn, cotton, sugar, tobacco, and opium are obtained, and the territory also rears large numbers of camels, horses, and sheep. Well irrigation prevails throughout these states, the irrigation wells of the west being sometimes

from two to three hundred feet deep. Cotton and woollen cloths are made as well as articles in metal and ivory. Every state is represented by a *vakíl* or ambassador at the court of the governor-general, and an agent of the governor-general has the superintendence of the native administration on behalf of the British government. The number of agencies is seven. The Rájput nation claims to be a branch of the Kshatriya or warrior caste of Hindus. They are essentially a military people, and many of their institutions bear a strong resemblance to the feudal customs which prevailed in Europe in the middle ages. They have likewise been celebrated for their chivalrous spirit; but, on the other hand, their character is stained by the practice of female infanticide, which, though in many places checked or put a stop to by the influence of the British, is said to be in some of the states as prevalent as ever. Throughout Rájputána Jats, a people of Aryan origin supposed to have immigrated into India at a period long subsequent to the first Aryan settlements, are numerous, and in two of the states, Bhurtpore and Alwar, the ruling families belong to this tribe. Many of the Jats are Mohammedans, and those of them who have adopted the Hindu religion have never recognized the system of caste, on which account they are regarded by the other Hindus as impure. In the western states there are large numbers belonging to a Rájput tribe called the Bhattis, among whom the use of opium has produced a lamentable deterioration both in their physical and moral condition. These must be carefully distinguished from the Bhats, who do not form a tribe, but are a kind of bards attached to particular families. The majority of the Rájputs are Hindus as regards their religion, the remainder Mohammedans and Jains. Only in the state of Tonk is the prince Mohammedan. The Rájputs first became connected with the British government under the Marquis of Wellesley in the beginning of the present century.

Among the most important towns in Rájputána are Jodhpur, situated in a well-wooded and well-cultivated plain, and said to contain a population of 150,000; Jaipur, said to be the most regularly built city of the Hindus, surrounded by a wall with high towers and well-protected gates, and possessing, in addition to numerous handsome mosques and temples, a splendid palace with beautiful gardens belonging to the prince; Bhurtpore, a place of some size but unattractive, having narrow crowded streets; and Bundi, a well-built town in the midst of a rich and beautiful district. The sanitarium on Mount Abu in Serohí stands at the height of upwards of 4500 feet (the highest point of the Arávali range) and is remarkably healthy. On the same mount is Dilwára, where there are temples of white marble richly carved, to which large numbers of Jain pilgrims resort, and which are said to have been erected at a cost of from thirty to forty millions sterling. The cost of one of the temples alone was £18,000,000.

CENTRAL INDIA is the name given to the groups of native states under the political superintendence of the British agent resident at Indor (Indaur). It comprises the district of Malwa (including among other native states those of Indor (Holkar's Dominions), Gwáliár (Sindia's Dominions), Bhopál, and Dhár), between Rájputána and the Central Provinces in the west, and the district composing the Bundelkhand and Bhagelkhand agencies, between the North-west

and Central Provinces, in the east. Both Holkar's and Sindia's Dominions are much scattered and intermingled. The western district of Central India is an irregular table-land with a mean elevation of about 2000 feet, and possessing a fertile soil and one of the mildest climates in India; the eastern district, in its western portion (Bundelkhand) a hilly country, and in its eastern portion (Bhagelkhand or Rewa) composed of three broad terraces rising from the valley of the Ganges, the first a sterile expanse of sandstone at the height of about 500 feet above sea-level, the second well cultivated and about 1000 feet above sea-level, the third higher still and possessed of great fertility. Both districts are on the whole well watered, and include among their products sugar, tobacco, cotton, and opium. In some parts of the western district the last-mentioned

The Fortress of Gwáliár, the largest and strongest fortress in India.

product is grown in such quantity as to give the country the appearance of a flower-garden when the poppy is in bloom. Coal and iron are found in considerable quantity in the Bhagelkhand agency. The population of these territories is very mixed. In Malwa there are Márathas, Játs, Rájputs, and other Hindus proper, besides a considerable number of Bhíls, and in Bhopal a number of Páthán or Indian Afghans; in the eastern district the majority are Rájputs. The Márathas, a tribe belonging to the lowest of the four Hindu castes (the Sudras), who in the seventeenth and eighteenth centuries formed a powerful dominion in the middle regions of India. In physical characteristics they bear much resemblance to the Dravida nations, but their language is descended from the Sanskrit. They are themselves divided into about two hundred castes, which keep themselves separate with the greatest jealousy. The Bhíls are one of the most numerous of the pre-Aryan tribes of India, and are found over a considerable tract of the hill region of Central India. They are a wild and turbulent race, much given to plunder, but are said to show remarkable fidelity to their word when it is once pledged, and to be capable of advancing to

a higher degree of civilization where they have been induced to settle down to peaceful pursuits, as they have been in many places under British rule. They are much sought after by the British government for the army and police service. In size they are remarkably small, averaging only 5 feet 3 inches in height. The other tribes have been already noticed. As regards religion the majority of the inhabitants are Hindus. Mohammedans are most numerous in Indor. Most of the states of Central India were brought under British supervision, or placed under British protection, about 1818.

Indor (Indaur; pop. about 15,000), the residence of the British agent for Central India, is by no means the most populous town in the territory, but owes its importance to its vicinity to the military station of Mhau, which lies about 14 miles to the south-west in a healthy and picturesque situation at the height of upwards of 2000 feet above sea-level. Ujjain (Ujjaiyiní), a little to the north of Indor but in one of the tracts belonging to Sindia's Dominions, is celebrated for the number of Hindu temples it possesses. It was one of the seven sacred cities of the Hindus. At Bhilsa, in another portion of Sindia's Dominions lying to the east, there are numerous Buddhist remains. The most populous town is Gwáliár, in the north of Malwa, which contains about 50,000 inhabitants. The fortress of Gwáliár extends along the top of a precipitous oblong sandstone hill rising to the height of from 200 to 400 feet above the plain, and consists of a very imposing series of works. Chatterpur in Bundelkhand has manufactures of paper and cutlery; Rewa, the chief town in Bhagelkhand, is a place of no consequence whatever.

BARODA, or the GAIKAWAR'S DOMINION, is composed of several patches of territory in Eastern Gujarát and the Peninsula of Kathiawár, the largest patches belonging to the former district. It is a Márátha state which was allowed to preserve its independence under the protection of the British when the power of the Péshwa was overthrown at the beginning of the present century. An account of the surface, products, &c., will be found under BOMBAY PRESIDENCY, to which, along with the rest of Gujarát, the state belongs geographically. The first treaty with the Gaikawár was made by the East India Company in 1780. The town of Baroda (Barodra; estimated pop. 200,000), the capital of this dominion, is situated on a marshy flat in the interior, and is a place of great trade. It is an old town of wooden houses founded by the Mohammedans. There was an English trading settlement here as early as 1615.

HAIDARÁBÁD is the name given to the district in Southern India in possession of a powerful Mohammedan prince known as the Nizám of the Deccan (Dakhan), and comprehending the greater part of the country between the Godávari and the Krishna. It consists mainly of an undulating table-land of no great elevation, and possesses a good climate, the temperature being remarkably equable, and for the latitude moderate. The rainfall is deficient (about thirty-two inches), but the soil is fertile, and when irrigated produces abundant crops of cotton, wheat, and oil-seeds, as well as maize, sugar, tobacco, indigo, &c. There are large flocks of sheep, and honey and bees'-wax are plentiful. Woollen and cotton fabrics are manufactured for home use, and hides, dye-stuffs, gums,

and resins are the chief articles of commerce. Among the wild animals are the tiger, leopard, nylgau, antelope, and buffalo. Nearly the whole country is parcelled out into feudal lordships, which were originally held on the condition of maintaining an armed force at the disposal of the Nizám. The Nizám's Dominion was established in the early part of last century, when the Mogul Empire was in its decline. Relations with the British were first formed about the middle of the century.

Haidarábád (estimated pop. 200,000), the capital of the province, stands on the south bank of the Musi, a tributary of the Krishna, at the height of 1700 feet above the sea, in the midst of a highly picturesque country overspread with granite hills and isolated rocks of various forms. Its palaces and mosques seen in combination with the buildings of the British residency give it an appearance of much grandeur, but it contains a mixture of stately houses with low and dirty hovels in narrow crooked streets. There are manufactures of silk with gold embroidery in the weft, and of turbans and trinkets. Golkonda, six miles to the west, contains the tombs of the kings who reigned over this territory in the sixteenth and seventeenth centuries. The district round was once celebrated for its diamonds. Aurangábád (about 60.000), in the north-west, contains the palace of Aurangzéb and the tomb of his favourite wife. Nine miles to the north-west is Daulatábád, one of the strongest fortresses in India, founded in the fourth century as a rival to Delhi; and about nine miles still further off in the same direction are the famous cave temples of Ellora.

The Tombs of the Kings, Golkonda.

MANIPUR is a small state on the south-east frontier of Assam, consisting mainly of a difficult and mountainous country intersected by one considerable valley. The climate is good and the soil fruitful. The district is subject to a native rája, but is inhabited by a number of distinct tribes, all more or less uncivilized and often at war with one another. The people are professedly Hindus, but observe many practices totally opposed to Hinduism. Amongst the wild tribes the code of morals is of the most savage kind. Revenge is looked

upon as a duty, and the taking of human life is regarded with the utmost indifference. Hocky played on horseback is one of the favourite pastimes of the Manipuris, who are generally fond of athletic amusements. The province was taken under British protection at the commencement of the first Burmese war (1824).

LIEUTENANT-GOVERNORSHIPS.

The lieutenant-governorship of **BENGAL**, or **THE LOWER PROVINCES**, comprises, besides the old province of Bengal corresponding to the south-eastern portion of the lieutenant-governorship, the old provinces of Bihár (now mainly included in the Patna division), Orissa, Chutia, Nágpur, and Kuch Bihár, besides the tributary states of Chutia, Nágpur, Orissa, Kuch Bihár, and Hill Tippera, and the protected native state of Sikkim. The following table gives the area and population, and population per square mile, of the divisions of the lieutenant-governorship under British administration, as well as of the aggregate of the native states:—

Divisions.	Area in sq. miles.	Population in 1872.	Pop. per sq. mile.
Bardwán, ...	12,770	7,286,957	571
Presidency, ...	17,678	7,899,090	447
Rájsháhi and Kuch Bihár, ...	17,455	7,377,063	423
Dacca (Dháká), ...	17,452	9,012,161	516
Chittagong (Chattagrám), ...	9,735	2,025,645	208
Patna, ...	23,726	13,122,743	554
Bhágalpur, ...	20,448	7,289,784	357
Orissa, ...	9,053	3,162,490	349
Chutia Nagpur, ...	27,883	3,326,964	119
Total, ...	156,200	60,502,897	387
Native States, ...	37,988	2,328,440	61
Grand Total, ...	194,188	62,831,337	324

The general physical character of Bengal is that of a champaign country, there being few remarkable elevations within its limits, though it is bordered by lofty chains of mountains. It is intersected in all directions by rivers, mostly tributaries of its two great rivers the Ganges and Bráhmaputra, which annually (in June and July) inundate almost the whole region except the slopes of the Himálayas in the north, the hill districts of Chittagong and Chutia Nágpur in the east and west, and the Orissa division, converting the country into a great inland sea dotted over with towns and villages in the form of islands. These annual inundations render the soil extremely fertile, but in those tracts where this advantage is not enjoyed the soil is thin, seldom exceeding a few inches in depth. The most inhospitable part of Bengal is what is called the *Súndarbans* (from being covered with the súndri or sunder tree), that portion of the country through which the numerous branches of the Ganges seek the sea, or the space lying between the river Húglí and Chittagong, about 150 miles from east to

west, and about 160 from north to south. This district is infested with tigers, is traversed in all directions by water-courses or nullahs, and interspersed with numerous sheets of stagnant water called jhíls, which abound with fish and water-fowl, and are much resorted to by crocodiles.

There is more regularity in the changes of the seasons in Bengal than perhaps in any other part of India; but it is subject to great extremes of heat, which, added to the humidity of its surface and the heavy dews that fall, renders it generally unhealthy to Europeans. The prevalence of hot winds, which are sometimes loaded with sandy particles, is another source of disease. The seasons are distinguished by the terms hot (March to June), rainy (June to October), and cold (the remainder of the year). The most unhealthy period is the latter part of the rainy season, especially when it is hot. At that period the rains are less, and, the waters having begun to subside, profuse exhalations take place from stagnant waters left by the inundations, and from a rank decaying vegetation. The hot season is less unhealthy but very oppressive. The thermometer sometimes rises to 110° Fahr.; not a cloud is to be seen, and the air is perfectly still. The cold season is the most grateful and healthy of any to Europeans. North winds then prevail, with a clear sky.

Besides rice and other grains, which form along with fruits (gourds, mangoes, &c.) the principal food of the population, there may be mentioned among the agricultural products of Bengal, indigo (in general cultivation), opium (in the Patna division), cane-sugar, tobacco, the betel plant, cotton (chiefly in the Chittagong hill districts), the *pát* and *sunn* plants supplying a material for cordage and coarse cloths, tea and cinchona. The last two are of recent introduction. Tea is grown chiefly in Kuch Bihár (Dárjiling district), Chittagong, Dacca, and Chutia Nágpur. The field for its expansion in the first-mentioned district is said to be indefinitely large, and the soil and climate of the district better adapted for the purpose than any yet explored. The cinchona plantations are confined to the Himálayan valleys of Dárjiling and the native state of Sikkim. The species chiefly grown is the red bark (*Cinchona succirubra*), but endeavours are being made to introduce also the yellow bark species (*Cinchona Calisaya*). The principal forest trees are the sál on the Himálaya slopes, sál and teak in Orissa, and the súndri (used for boat-building) of the Súndarbans. Wild animals are most numerous in the Súndarbans and Orissa, snakes being remarkably abundant in the latter district. In Chittagong there are large numbers of elephants, which are caught and trained to labour. Among the birds of Bengal we may single out for mention the gigantic crane, commonly called the adjutant, from the stately air with which he struts about. He frequents the towns in considerable numbers, performing the office of scavenger by clearing the streets of garbage, in consideration of which duty he enjoys an entire immunity from all disturbance. His principal food is offal, toads, lizards, serpents, and insects.

The principal minerals of Bengal are nitre, coal, iron, and salt. Nitre effloresces on the surface round Calcutta and elsewhere. Coal is worked in upwards of forty collieries at Raniganj in Bardwán division, where the seams

are about 8 feet in thickness, and iron in the district of Bírbhúm in the same division. The best salt made in India is obtained from the maritime districts of Orissa and the banks of Lake Chilká. The most important manufactures of the lieutenant-governorship of Bengal are coarse cotton and jute fabrics, and blankets, besides various vegetable products (opium, sugar, indigo, &c.). The roads in Bengal are not so numerous as in most other parts of India, the reasons of which are that the materials for road-making are absent, and the roads when made are liable to be destroyed by the inundations. Where roads do exist (between Calcutta and the other large towns), they are paved with brick, and raised a considerable height above the level of the surrounding country. Railways are raised in the same way.

The people of Bengal are mainly of Hindu race except in the valleys of Chittagong, where they are chiefly Burmese and Mughs. (See BRITISH BURMA.) The dialects spoken are Bengálí in Bengal proper, Hindí in Patna division (where the people speak the same dialect as in the adjoining part of the North-west Provinces), and Uríya in Orissa.

The private houses of Bengal are huts, with pent-roofs constructed of two sloping sides which meet in a ridge. One hut of this kind serves the poor man for himself, family, and cattle; wealthy men increase the number of houses without altering the plan, and without having any communication between the different apartments. The walls are generally made of mud, and the floor is raised a foot or two above the level of the plain, to prevent its being flooded in the rainy season, which, however, is not always accomplished. The frames of the houses consist of bamboos tied together—wooden posts and beams being used in the construction of the houses of the wealthy only.

The greater part of the lieutenant-governorship of Bengal came into the hands of the East India Company in consequence of Clive's victory at Plassy in 1757, and was formally ceded to the Company by the Nabob of Bengal in 1765. Chittagong had previously been ceded by the same prince, but its government under British administration was not organized till 1824. Orissa came into British hands in 1803.

The capital of the Bengal province and the seat of government of the whole of British India is Calcutta, on the Húglí, one of the chief mouths of the Ganges, from which it diverges at a point about 120 miles from the sea. "No fewer than six great historical ports have been formed upon this river. The oldest of them, Satgaon, the ancient royal port of Bengal under the native dynasties, has been completely deserted by the navigable channel, and is now a thatched village crumbling upon the banks of a muddy ditch. The Dutch, the French, and the Danes each set up ports of their own on the Húglí river, off which vessels of the largest tonnage in the last century used to lie. Every one of these three famous emporiums is now blocked up by banks of sand and silt, and is unapproachable by sea-going ships at the present day.

"Calcutta has been saved from the same fate by a system of river engineering which forms one of the most splendid triumphs in the contest of man with nature. The river Húglí has ceased to be the direct channel of the Ganges; but Calcutta

alone of all the successive river capitals of Bengal has overcome the difficulties incident to its position as a deltaic centre of commerce. . . . In 1853 the deterioration of the Húglí channel led to a proposal to found an auxiliary port to Calcutta on the Matlá, another mouth of the Ganges further east. . . . At that time 'science had done nothing to aid in facilities for navigation,' but since then everything has been effected which the foresight of modern engineering could suggest or the power of modern capital could achieve. Observations on the condition of the Húglí channel are taken hourly, gigantic steam-dredgers are continually at work, and the shifting of the shoals is carefully recorded. By these means the port of Calcutta has been kept open for ships of the largest tonnage, drawing 26 feet, and almost seems to have outlived the danger which threatened its existence." (Dr. W. W. Hunter.)

Calcutta is divided into two distinct portions, the north occupied by natives, the south by Europeans. The houses of the British quarter are of brick elegantly built, and in this quarter there are so many handsome edifices as to have earned for Calcutta the name of "the city of palaces." The native quarter (the *Pettah* or *black town*) presents a striking contrast to the British, being composed of narrow crooked streets, with mean houses, some of mud, some of brick, but mostly of bamboo frames covered with straw mats. Interspersed among the houses are gardens and innumerable tanks. The suburbs are extensive and well laid out. The botanic gardens of Calcutta are remarkable for their extent and beauty. The population of the city in 1872 was 448,000, including 291,000 Hindus, 133,000 Mohammedans, and 21,000 Christians.

The town next in size to Calcutta is Patna (159,000) on the Ganges, an old Mohammedan city still remarkable for the splendour with which certain Mohammedan festivals are celebrated in it. These are held in a building called the *imambára*, in which sometimes as many as 100,000 people congregate. Patna is now the chief seat of the opium trade, and carries on an immense traffic by the river, to which access is obtained by numerous *ghâts*, or landing-places in the form of flights of stairs. Gayá (67,000) in the same division is celebrated as the birthplace of Gautama Buddha, the founder of Buddhism. Bhágalpur (70,000) is the headquarters of the troops who keep the Sontál tribes in check. Dacca (Dhaká; 69,000), formerly celebrated for its fine muslins, "webs of woven wind," is still an important seat of manufactures. Múngír (60,000), in Bhágalpur, and Katak (50,000), in Orissa, are the only other towns in the province containing 50,000 inhabitants.

The native states of Bengal are chiefly in the south-west, where the CHUTIA NAGPUR MAHALS, with an area of 16,025 square miles and a population of nearly 500,000, or about 26 to the square mile, and the KATAK MAHALS, with an area of 15,187 square miles and a population of 1,156,000, or about 76 to the square mile, are situated. Both districts are in the main either hilly or rocky wastes or covered with forest and jungle, and are inhabited by wild aboriginal tribes.

HILL TIPPERA is a small mountainous district to the east of Dacca division, with an area of 2869 square miles and a population of 92,000, or about 31 to the square mile. It is nearly covered with bamboo jungles, infested with

wild animals. The inhabitants are chiefly Kukís or Lushais, a semibarbarous race of small stature and dark colour, who cultivate rice, cotton, maize, indigo, pumpkins, and yarns. The tea plant is abundant in a wild state.

KUCH BIHÁR is a fertile and densely populated tract on the south slope of the Himálayas, producing opium, cotton, indigo, and wheat. Part of the original state of Kuch Bihár is now under British administration; the remainder is subject to a native rája, who pays half his revenue to the British as tribute. The area of the latter portion is 1307 square miles; population, 533,000, or upwards of 400 to the square mile.

SIKKIM is a small mountainous tract between Bhután on the east and Nepál on the west, having similar products to those of the adjoining part of Bhután. The state was taken under British protection after the Nepálese war of 1814, in which the rája had furnished assistance to the British.

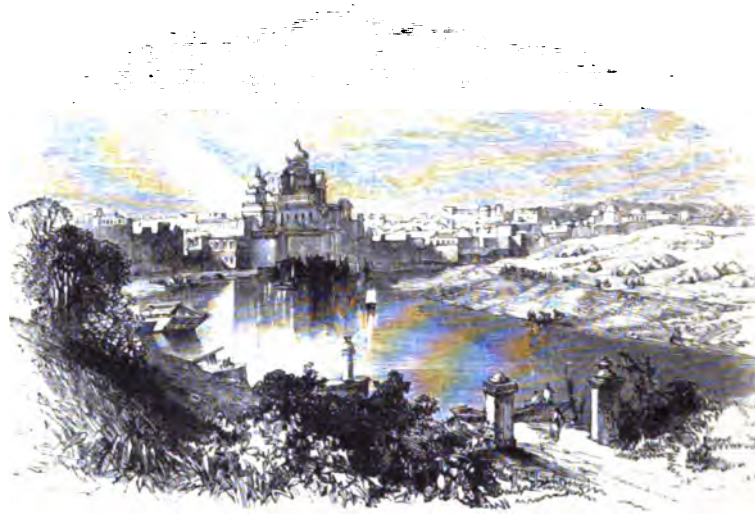
THE NORTH-WEST PROVINCES, including **OUDH,** form a lieutenant-governorship to the north-west of Bengal, and are divided as shown in the following table:—

Divisions.	Area in sq. miles.	Population in 1872.	Pop. per sq. mile.
Meerut (Mírath), ...	11,131	4,977,173	447
Rohilkhand, ...	11,805	5,436,314	461
Agra, ...	10,164	5,040,919	496
Jhánsi, ...	5,067	934,934	185
Allahábád, ...	13,422	5,468,955	407
Benares (Banáras), ...	18,314	8,179,307	447
Kumaun, ...	11,500	743,602	65
Oudh* Lucknow (Lakhnau),	4,441	2,838,106	639
Oudh* Sítápur, ...	7,455	2,603,619	349
Oudh* Faizábád, ...	7,118	2,965,084	417
Oudh* Rái Barelí, ...	4,911	2,773,211	565
Not included in districts, ...		22,137	
Total,.....	105,328	42,001,436	399
Native States, ...	5,125	657,013	128
Grand Total,.....	110,453	42,658,449	386

* Population according to Census of 1869.

The surface, climate, and agricultural products of the North-west Provinces are very similar to those of the Lower Provinces, except that, as regards climate, the extremes in the North-west Provinces are even greater than in the latter, the hot season being almost unbearably hot, while the cold season is delightfully cool, and, as regards products, wheat and barley are more common grains than rice. Tea has been successfully introduced into the division of Kumaun, a mountainous district belonging to the Himálayas in the extreme north-west, presenting rich and varied scenery. The divisions of the former province of Oudh are remarkably fertile, sustaining a denser population than any other part of India. In many parts of the remaining divisions the soil is injured by the presence of lime on the right bank of the Ganges, and nitre on the left bank. Among other minerals iron is found in considerable quantity in Kumaun. In

the western divisions of the North-west Provinces irrigation is absolutely necessary for cultivation, and for this purpose numerous wells and tanks exist, as well as canals. Of the last-mentioned the most important is the Ganges Canal, constructed under British rule and completed in 1854. It extends from Hardwár in the Meerut division to Cawnpore in that of Allahábád, with branches to various other towns, and has a total length including branches of 460 miles, direct length 350 miles. It crosses the Solani on a magnificent aqueduct consisting of fifteen arches with a span of 50 feet each. The dialects spoken in the provinces are Hindí and Urdú or Hindustání. The original North-west Provinces came into the hands of the British between 1775 and about 1850, and were acquired from



Lucknow, with the Palace of Chutter Munzil.

Oudh, Nepál, the Máráthas, &c. Oudh (in Sanskrit *Ayodhyá*) is the ancient Kingdom of Kosala, and was governed by descendants of Nadír Shah till 1856, when it was annexed by the British in consequence of continued misgovernment. It was incorporated with the North-west Provinces in 1877.

The largest town in the North-west Provinces (the fourth in population in all India) is Lucknow (Lakhnau); population 285,000. It is an ancient town, but its splendour dates only from 1775, when it was made the capital of the Mohammedan kingdom of Oudh. It stands on the right bank of the Gumti (Gomatí) in a remarkably fertile region, and presents an exceedingly picturesque appearance on account of the numerous spires and domes which surmount its gorgeous buildings. Benares (Banáras; 175,000), on the Ganges, is also a place of great antiquity, formerly celebrated as a seat of Hindu learning, and now a sacred city, the residence of numerous Brahmans, who live on the alms and offerings of pilgrims from all parts of India. The city is said to contain 5000 Hindu temples and pagodas, and 350 mosques, which rise in rows above one another from the

river side. The streets are so narrow and crowded that it is difficult to pass through them on horseback, and business is chiefly transacted on the ghâts, which, like those of Patna, present a constant scene of bustle and animation. Agra (149,000), on the Jamna, formerly a favourite residence of the Mogul emperors, is celebrated as possessing one of the most magnificent buildings in the world, the famous Táj Máhal, a domed edifice of polished white marble decorated in the most tasteful manner with mosaics and inlaid with jaspers, agates, carnelians, and other precious stones. It was erected by Shah Jehan as a mausoleum for his queen. Near Agra is the equally splendid mausoleum of the emperor Akbar. Allahábád (144,000), the Varanávata of the Mahábhárata, is situated at the confluence of the Ganges and Jamna, each here a mile wide, and is the seat of government of the North-west Provinces. Its present name, meaning "the abode of God," is due to the Mohammedans. Canningstown is the name given to the new English suburb that is rapidly growing up. Cawnpore (Kánhpur; 122,000), on the right bank of the Ganges, is notorious as the scene of the massacre of English women and children by the mutinied sepoys in 1857. Barelí (103,000) is the chief town of Rohilkhand; Meerut (Mírath; 81,000) is celebrated as the scene of the outbreak of the mutiny of 1857.

The native states belonging to the North-west Provinces are GARWHAL, in the extreme north-west, with an area of 4180 square miles and an estimated population of about 150,000, or about 36 to the square mile; and RAMPUR, inclosed by the division of Rohilkhand, with an area of 945 square miles and a population of 507,000, or about 536 to the square mile. The former is a mountainous tract like the adjoining division of Kumaun, the latter a rich and beautiful district.

THE PANJAB is the name given to the lieutenant-governorship in the extreme north-west of India, including Kashmír among the native states dependent on it. It is divided as shown in the following table:—

Divisions.	Area in sq. miles.	Population in 1868.	Pop. per sq. mile.	Divisions.	Area in sq. miles.	Population in 1868.	Pop. per sq. mile.
Delhi, ...	5,609	1,916,423	341	Deraját, ...	15,007	991,251	66
Hissár, ...	8,472	1,232,435	145	Pesháwar, ...	8,171	1,035,789	127
Ambála, ...	4,007	1,652,728	412				
Jalandhár, ...	12,400	2,477,536	200	Total,...	104,975	17,611,498	168
Amritsar, ...	5,335	2,743,880	514	Native States,	114,742	5,367,042	
Láhor, ...	8,961	1,889,495	211				
Ráwalpindi,...	16,857	2,197,387	130	Grand Total,...	219,717	22,978,540	
Multán, ...	20,156	1,474,574	73				

The extreme north-eastern portion is rendered mountainous by spurs, or offsets of the great Himálaya system, and the north-west is hilly; but with these exceptions the surface is for the most part an extensive plain, gradually sloping from the north-east to the south-west, in the direction of the six rivers by which it is watered. These rivers (proceeding from west to east) are the Indus, the Jhílam (ancient, *Hydaspes*), Chenáb (ancient, *Acesines*), the Raví (ancient, *Hydraotes*), the Biás (ancient, *Hyphasis*), and the Satlej (ancient, *Hesudrus*). The

combined waters of the five tributaries of the Indus form the Panjnad, which joins the Indus near Mithankot. The rivers of the Panjáb divide it into five districts, or *duábs* (countries between two rivers). Of these the Bári Duáb, between the Rávi and the Biás, is the most populous and important of all, containing the large towns of Amritsar, Multán, and Lahore, though it includes also considerable barren tracts; while the Jalandhár Duáb is throughout highly cultivated, and is excelled in climate and productions by no province in India. The climate of the Panjáb is hot and dry, and little rain falls, except in the higher country. The winters are cool even to a European, the temperature varying from 34° to 75° Fahr., seldom higher; whereas in summer the heat is excessive, and more oppressive even than in the most sultry parts of Arabia. On account of the deficiency of rain agriculture in the Panjáb is almost everywhere dependent on irrigation. Near the foot of the Himálayas, and in the upper valleys, where water is to be found within 25 feet of the surface, wells are employed for irrigation. In the low tracts inundation canals are used for the purpose, and by means of them "the district of Multán between the Satlej and the Chenáb, where rain hardly ever falls, is converted into a succession of beautiful gardens shaded by date-palms." In the upper regions of all the duábs except the Jalandhár Duáb perennial canals are necessary to fertilize the land. The most important of these perennial canals (which have all been constructed under British rule) is that of the Bári Duáb, which with its branches has a length of 480 miles.

Besides the ordinary agricultural products of Northern India the Panjáb produces oil-seeds, cucumbers, and melons in large quantities; large crops of indigo and sugar; tobacco, which grows luxuriantly, especially about Multán. Large trees are scarce, but here and there are forests of deodar. About 66 per cent of the whole cultivated land is cultivated by the proprietors.

Wild animals abound in the jungle, and the plains also are covered with herds of wild horses, nylghaus, and buffaloes. Elephants are sometimes used as beasts of burden, but mules and asses are in far more common use. Among the birds is the *bulbul* or eastern nightingale. The silkworm thrives remarkably well, and bees are plentiful, producing great quantities of fine honey. Gold is found in the beds of the Indus and Chenáb. Iron, plumbago, antimony, alum, and sulphur are found in the hill country; nitre is obtained abundantly in the alluvial plains, and coal-beds exist on the left or east bank of the Indus.

The manufacturing industry of the Panjáb is more extensive than in any other province of India, though it is chiefly confined to the larger towns. Amritsar, Lahore, and Multán are distinguished for their silk and cotton fabrics; and the silks of Multán, called *kais*, and chiefly used for scarfs, possess a strength of texture and brilliancy of colour for which they are much prized in the Indian markets. The shawls of Lahore, too, rank only second to those of Kashmír. Brocades, tissues, and carpets resembling the Persian are also manufactured in the capital. In the east of the Panjáb white cotton goods are prepared of a stronger and more durable texture, as well as cheaper, than those of British manufacture. Swords and firearms of all sorts, and

of an excellent quality, were under the Sikh dynasty made in great quantities at Lahore.

The Panjáb enjoys from its position an extensive transit trade with Kabul, Bokhara, Kandahar, &c., as well as a more direct one for the disposal of its produce and the supply of its internal wants. The trade with Afghanistan is mainly in the hands of a hardy tribe of Afghans called Povindas, who in summer are shepherds and in winter visit the commercial cities of Western India to carry on trade.

The population of the Panjáb is composed of various races, the chief of which are the Játs, Sikhs, Rájputs, and Patháns. In general the people are in physical respects superior to those of Hindustan, and to the full as active as the Márathas, having stout, well-rounded limbs, and an active graceful carriage, particularly the better classes. The women too are elegantly shaped and very attractive; their costume embraces trousers and extraordinarily high conical caps. The male attire consists of a *pagri* or sort of turban, a close-fitting jacket, and large bulky trousers usually terminating at the knee, with a scarf thrown over the shoulder, either with a coloured trimmed border or consisting of a gaudy-coloured shawl; the rest of the dress is invariably white, and kept for the most part very clean. The hair is worn long, and gathered up into a knot at the crown. The Sikhs are almost exclusively a military and agricultural people—barbarous indeed from want of knowledge, but neither savage nor cruel, being, on the other hand, frank, generous, and lively. The Sikh soldier is, generally speaking, brave sometimes even to desperation, active, cheerful, and merry—without polish, but destitute neither of sincerity nor attachment. The Sikh merchant or farmer, if he be a *Sinh*, or fighting man, differs little in character from the soldier, except that he is less presuming and boisterous. He also wears arms, and can use them promptly and with effect when required; and as regards character, he is as intriguing, versatile, insinuating, and artful as any of the lower classes of Hindus.

The religion of the Sikhs is a heterodox form of the Hindu faith. The notion of a supreme deity, who is both creator and protector, pervades the poetry of Nanal and his fellow bards, who are looked upon as the exponents of the national creed; and hymns are chanted at daily services to that deity who is designated by various popular names of the Hindu god Vishnu. The existence of other Hindu deities is not disputed, but no divine honours are publicly paid to any of them. An important distinction between the Sikhs and the other Hindus is the absence of caste, and consequently of most of the restraints inherent in that institution. The Sikhs do not refuse to eat or to intermarry with other Hindus who have become converts to their form of religion; but they do not extend the same liberality to Mohammedans, against whom they have always exhibited great national hostility. The flesh of the cow is the only article of animal food prohibited by their faith, and on this head their prejudices are stronger even than those of Hindus of the orthodox Brahmanical persuasion. Smoking is prohibited, but *bang*, opium, and spirituous liquors are freely used; and it has been said that no race of people in India is more flagrantly demoralized than that of the Panjáb. As in the other provinces of India missionary work is carried on here also, but

is making little progress. The language of the Panjáb is a jargon of various tongues; for while a dialect of Hindustáni is spoken in the larger towns, the rural population use the Jatskí, sprung from a cognate root and the original language of the country, and on the southern frontier there is a considerable admixture of Sindhí. With regard to education it is worthy of note that girls' schools are more numerous in the Panjáb in proportion to population than in any other part of India. Early in the present century the whole of the Panjáb proper came under the domination of the Sikhs; but the Sikh forces having in 1845–46, and again in 1849, come into collision with the British, their whole territory was annexed in the latter year to British India. With this territory the region in the south-east, including Delhi, was afterwards incorporated. Since its occupation by the British great improvement has been effected in the condition of the country and its people.

Delhi (154,000), the principal town in the lieutenant-governorship of the Panjáb, stands on the Jamna, and occupies the site of the ancient Hindu city of Indraprastha. The present city, once the capital of the Mogul emperors, was built in the early part of the seventeenth century by Shah Jehan, and contains among other remarkable buildings the former imperial palace, about a mile in circuit, and the Jámá Masjid, the finest mosque in India, constructed of white marble and red granite. Delhi was the principal stronghold of the mutineers in 1857, and it was its capture on the 20th of September in that year that saved British rule in India. Amritsar (134,000), in the east of the Panjáb, is an important seat of trade and industry, and is also the residence of the head of the sect of the Sikhs, who lives on a small island in a tank of clear water, known as the Fount of Immortality (which is what the name Amritsar signifies). Lahore (98,000), on the Ráví, is the seat of government. Pesháwar (59,000), near the western frontier, formerly the capital of Eastern Afghanistan, is now one of the largest military stations in British India. Inclosed by native states in the north-east of the lieutenant-governorship is the small British district of Simla, with the sanatorium of the same name situated in the midst of noble scenery at the height of from 7000 to 9000 feet above the sea. The Viceroy of India has a residence here, and the place is a favourite health resort among the principal officers of the government of India.

The native states of the Panjáb are very numerous, but some of them very small, several being under 50 square miles in extent. Between the Jalandhár Duáb and the division of Hissar lie the protected Sikh states, the principal of which is PATIALA, a fertile province, with an area of 5412 square miles and a population of 1,586,000, or about 293 to the square mile. The hill states of CHAMBA, BASHAHR, SIRMUR, MANDI, &c., are mostly rugged but picturesque tracts inhabited by ignorant and superstitious, but frank and truthful tribes. In Chámbá (which is at present, during the minority of the rája, under direct British administration) there are extensive forests, which are leased by the British and are under the management of the Panjáb Forest Department. BAHAWALPUR is the largest of the native states of the Panjáb south of the Himálayas. It lies on the left bank of the Indus and

Gharra or Lower Satlej, and is an extensive flat mostly barren, only about one-sixth part being cultivable. A strip of from ten to twelve miles in breadth bordering the rivers is rendered fertile by inundation canals. The area of the state is about 15,000 square miles; the population 457,000, or about 30 to the square mile.

KASHMÍR is the largest of all the native states attached to the lieutenant-governorship of the Panjáb, and is absolutely independent, except that the ruler of the state is bound to refer to the arbitration of Britain in all disputes. The present state of Kashmír includes not only Kashmír proper (the valley of the Bihat or Jhílam), but also the districts of Jamú in the south, and Balti and Ladakh in the north. The area of the whole is 79,784 square miles, and the population 1,535,000, or about 19 to the square mile.

The whole region is traversed by lofty mountains, the only considerable valley being that of Kashmír proper, the bottom of which covers an area of about 2000 square miles. The elevated situation of this valley, and the mountains of snow which surround it, render the climate rather cold; but it is, on the whole, moderate and mild. It is rich in romantic scenery, and blessed with an abundance of the finest productions, on which account the Asiatics call it the *paradise of India*, the *flower-garden*, and the *garden of eternal spring*. The hills are covered with forests and Alpine pastures; at the foot of these are fields of corn; along the sides of the rivers rice is planted; rich orchards extend over the foremost range of hills; mulberry-trees are cultivated in abundance for the support of silkworms, and are entwined with vines, from whose grapes wine very similar to Madeira is prepared. The fruits of warm climates do not ripen here. The valley is famous for its flowers, with which all the gardens and meadows abound. Violets, roses, narcissuses, and innumerable European flowers, besides many that are not known in Europe, grow wild. The roses and jasmine yield the finest aromatic oils, which form an article of export. The principal agricultural productions of the principality are wheat, barley, and buck-wheat. In the south (Jamú) there are extensive forests on the mountain slopes of cedar (deodar) and pine, but in some parts of the north (Balti), where no rain falls, every trace of vegetation disappears. In no part of the territory, not even in the valley of Kashmír proper, are there any roads fit for wheel carriages, but only tracks capable of being used by sheep, goats, mules, and yaks (the beasts of burden of the province), as well as man.

The manufacture of the celebrated Cashmere shawls is not so extensive as it once was, since manufactories have been established at Amritsar, in the Panjáb, and elsewhere, which compete successfully with those of Kashmír; but it is still considerable. The genuine Cashmere shawls, although not at all superior in point of workmanship and pattern to those manufactured in certain provinces of British India, are yet said to be of a better quality; and the explanation of the difference is said to be this, that whereas two kinds of wool are used in the manufacture of Cashmere shawls, the *pashm* or *pashmina* of the domestic goat, which is found in Chantam and Ladakh, and the *asulibus* of the wild goat and other wild animals, it is the former which supplies the manufactories

of Amritsar, &c., while Cashmere obtains its supply of the finer kinds of wool from the great market of Yarkand, in Turkestan. But this latter kind of so-called wool has been shown by recent investigations to be, properly speaking, no wool at all, but a soft down with which all the animals of the Upper Indus except the tame sheep are clad during the winter season, and which in length and fineness far surpasses the merino wool. This down is obtained in great quantities from the Cashmere goat, the yak of Tibet, and the wild sheep. Before being used it is so carefully cleansed and sorted that only about a third remains for spinning. It is spun by women and girls, and then passes into the hands of the dyers, who are said to be unsurpassed in their own art, and to be able to produce sixty-four different permanent colours or shades. The manu-

Srínagár, the capital of Kashmír.

facturer then receives the dyed yarns and hands them over to the weaver, along with a pattern that has previously been approved by the agent of the European firm for whom the shawls are intended; for no shawls are manufactured except upon order. The shawl is woven in stripes, which are afterwards very skilfully sewed together. The average time taken to manufacture a good Cashmere shawl is from sixteen to twenty weeks. Until 1870 the trade between India and Central Asia was greatly hindered by heavy transit dues; but in that year these were abolished in consequence of the pressure brought to bear on the máhárája by the British.

Nine-tenths of the inhabitants are Mohammedans, the remainder Hindus. One dialect is spoken in the plain, and another (Doghra) on the spurs of the Himálayas. Both are offshoots of the Sanskrit, but contain a considerable admixture of Persian.

The town of Kashmír or Srínagár, the capital of the principality, with a population estimated at 80,000, is picturesquely situated on the right bank of the Jhílam, between that river and Lake Dal. The Jhílam is crossed by several wooden bridges, and the town itself is intersected by numerous canals.

The houses are constructed of a thin wooden framework, the compartments of which are filled with bricks.

The district of **Ladakh**, also called Middle Tibet, in the north-east of Kashmír, may be generally described as an elevated table-land in the Himálayas about 11,000 feet above sea-level, and constitutes a part of the upper valley of the Indus. Into this valley a number of small valleys open, forming basins of the tributaries of the Indus. The great mountain ranges of Ladakh consist of granite, quartz, slate, and gneiss; but in the south-east are lofty mountains of recent formation, flanking and even overtopping the mountain ranges, and chiefly composed of calcareous rocks. The climate is cold and very dry; and in consequence of this dryness the grass, furze, and other prickly plants, which form almost the only vegetation of the district, have at all seasons a brown and scorched appearance. Some wheat, barley, and buckwheat are grown, and sheep, horses, yaks, cows, goats, and asses are reared. The manufactures are rude and unimportant. There is a considerable transit trade, Ladakh being naturally the great thoroughfare between Chinese Tartary and Tibet on the one hand, and the Panjáb on the other. The language is Tibetan. The inhabitants are of Mongolian origin, and in religion Buddhists. They are mild, peaceable, and honest, but timid, indolent, dirty, and given to drunkenness.

The principality was formed in 1846, when Kashmír proper was given by the British to the ruler of Jamú in recognition of his services during the Sikh war. The district of Ladakh had previously been conquered by this ruler in 1835.

CHIEF COMMISSIONERSHIPS.

THE CENTRAL PROVINCES form a territory lying between the native states of Central India and the presidency of Madras, and are divided as shown in the following table:—

Divisions.	Area in sq. miles.	Population in 1872.	Pop. per sq. mile.
Nágpur, ...	24,035	2,439,675	102
Jabálpur,...	18,693	1,839,100	99
Narbada,...	17,390	1,590,907	92
Chhattisgarh, ...	24,090	2,331,837	97
Total,.....	84,208	8,201,519	97
Native States, ...	29,112	1,049,710	36
Grand Total,.....	113,320	9,251,229	83

The surface is mostly hilly, wild, and rugged, a tract of 18,000 square miles in extent being covered by the Sátpura Mountains, and other large areas by lower hills. The cultivated area is consequently small, little more than one-fourth of the British territory being turned to account, and more than one-half of the

remainder being uncultivable. Nevertheless there are several broad and fertile tracts. Narbada is admirably adapted for the cultivation of the sugar-cane, of cotton, and of wheat, and it contains coal and iron, the latter found in great abundance not only in this division but throughout the provinces. The division of Nágpur has extensive cotton fields extending along the Wardha, which forms its south-western boundary, and it contains the celebrated cotton market Hinganghat; the valley of the Wainganga, further east, grows maize, wheat, and rice; and still further east the plateau of Chhattisgarh, although not as yet very extensively cultivated, promises to become the granary of the Central Provinces. Among agricultural products of less importance are millet, oil-seeds, opium, safflower, and indigo. Fibrous, medicinal, and edible plants are also abundant. The forests yield charcoal for the smelting of iron, timber, resins, gums, and dyes, lac-dye being peculiarly plentiful. A tree called the *mahuá* tree (*Bassia latifolia*) yields a hard strong timber, and also oil from its seeds, and has sweet-tasted edible fleshy flowers, which are used in the distillation of an ardent spirit. About a fifth part of the population of these provinces is dependent on a very simple mode of cultivation. A portion of forest land on sloping ground is cleared of trees, and the underwood afterwards burned. Seeds are then placed at the upper part of the slope, and the rains are allowed to wash these down. The climate of these provinces is at all seasons of the year remarkably variable. The mornings and evenings are cold even in the hot season (April to the middle of June), and in the cold season, when the mean temperature is about 40° Fahr., it sometimes suddenly rises to 80°, falling again as suddenly. The internal communications are still in need of development. Large sums of money have been spent in improving the navigation of the Godávari. The inhabitants include a considerable proportion of Gonds, a tribe among whom the grossest ignorance and superstition prevail. They worship a malignant goddess under the name of Máhádévi, and formerly offered up human sacrifices to her, but this practice has been put an end to under British rule. The dialects spoken are Máráthí in Nágpur, Hindí in a portion of Chhattisgarh, Telugu in the Godávari country, and a variety of jargons among the Gonds. In general the people are said to be the most backward in India.

The territory forming the Central Provinces was acquired by the British at different periods. The Ságar and Narbada region was ceded by the Rája of Nágpur in 1818; the Nágpur division was annexed in 1853, on the death of the rája without heirs, and some other districts were forfeited in 1857, on account of the conduct of their chiefs during the mutiny. The whole was organized under one administration in 1861.

The chief town is Nágpur (85,000), which has manufactures of chintzes, coarse blankets, tent-cloths, and copper and brass utensils, and a great trade in cotton, as well as in hemp, opium, and other commodities. Jabálpur (55,000), near the Narbada, stands under a rocky height at an elevation of 1460 feet above sea-level, and is also an important seat of trade. Good coal is found in the neighbourhood.

The principal native states are BASTAR, with an area of 3745 square miles; population, 133,000, or about 35 to the square mile; SARANGARH, area 2399

square miles; population, 98,636, or about 41 to the square mile; BÀMRA, area 1988 square miles; population, 53,613, or about 27 to the square mile; and KARONḌ, area 1486 square miles; population, 63,304, or about 45 to the square mile. Among the native states there are also now included fifteen of the Chútia Nágpur Máhals, with a total area of about 13,000 square miles and a very scanty population.

ASSAM is the name of a territory in the north-east of British India, with a total area of 45,302 square miles, and a population in 1872 of 4,162,019, or about 92 to the square mile. Assam Proper is composed of a long series of fertile valleys watered by the Bráhmaputra and its tributaries. These valleys of the Bráhmaputra consist of rich alluvial plains, comprising the deposits of ages as washed from the Himálayas on the north, and the Garo, Khási, Jaintiá, and Naga hills to the south. These alluvial plains are either but little elevated above the flood level of the Bráhmaputra and its feeders, or so low that large extents of them are flooded for three or four days once or twice in the year. Large areas are annually washed away through the Bráhmaputra changing its course, and are re-formed in different localities. On the south side of the hills is the Surmá or Barák valley, which is very similar to the valley of Assam Proper, but is even more subjected to inundations than the plains of the Bráhmaputra. The climate of Assam is more equable than that of Bengal, the mean temperature varying from 57° Fahr. in the cold season to 80° in the hot. It is also much more humid, clear skies in Assam being the exception, while the hills of this province have the heaviest rainfall in the world. The whole province, except the cultivated area, may be designated as forest, if the grass lands with trees scattered over them more or less abundantly be included in that term; but the most valuable forests are those of the Eastern Duárs. The supply of timber and other forest produce, as well as grazing grounds for the ryots, is so abundant that, except in the reserves, which are being added to year by year, they are granted free. Here are found the valuable teak and sísu (*Dalbergia Sissoo*) trees, date and sago palms, the areca-palm (the betel-nut tree), the caoutchouc tree (*Ficus elastica*), &c. The mulberry is cultivated in small patches for the rearing of the ordinary silkworm, and the *munga* silkworm is reared on another tree, the *súm* (*Michilus odoratissimus*), which is estimated to cover 300 square miles, and from which upwards of 100,000 lbs. of silk is obtained annually. It furnishes the favourite material for dress among all classes of the inhabitants, and is spun and woven by the women in nearly every household in the province. The valuable sál forests that formerly existed are now worked out, and require rest and care for their restoration. Rice is the chief food grain, and among the other products are cane-sugar, hemp, jute, cotton, and tea. The product last mentioned is the article of most commercial importance grown in Assam, which produces two-thirds of all the tea grown in India. The plant is a native of the province, where it was discovered in 1823 by Mr. Robert Bruce. In the jungles and forests roam herds of large elephants, considerable numbers of which are annually tamed and exported, and many more killed for their valuable ivory; in the dense and swampy parts of the forest the rhinoceros is met with, and tigers and wild

buffaloes abound; leopards, bears, and wild hogs are numerous, and jackals and foxes exist, and goats, deer of various kinds, and gazelles find shelter here, here the poisonous cobra and karait lurk, and more human lives are lost through their bite than by any other wild animal whatever; the python is also found, but he seldom attacks man unless in self-defence. Pheasants, partridges, snipe, wild peacock, and waterfowl of every description tempt the eager sportsman. Coal, petroleum, iron, and limestone, together with oil, mineral, and brine springs, are found; gold-dust is met with on the foot of the northern hills and rivers; it is not found in the southern streams. The coal-beds are supposed to be co-extensive with the main valley, but are only worked to the south of the Bráhmaputra.

The inhabitants are short and robust, in physiognomy resembling the Chinese; their complexion a shade or two lighter than the Bengalese. In the hill regions there is a great variety of tribes, some of them quite uncivilized and also quite independent. Assamese is spoken in Assam Proper, Bengálí in the region south of the hills. Assam Proper was conquered by the British in the first Burmese war (1826), and at first placed under a rája. Misgovernment, however, compelled the British in 1838 to take the administration of the province into their own hands, and the other tracts were subsequently added. For thirty-six years it was under the administration of the lieutenant-governor of Bengal, but in 1874 it was erected into a separate chief commissionership.

Natives of Assam.

The chief towns are Sylhet (17,000), in the district south of the hills, and Gauháti (11,000), the seat of the commissioner, on the Bráhmaputra.

BRITISH BURMA (BARMA) is the name given to the territory on the east of the Bay of Bengal conquered from the King of Burma. It is divided as shown in the following table:—

Divisions.		Area in sq. miles.		Pop. in 1872.		Pop. per sq. mile.
Arakan,	.....	14,526	.....	484,363	.....	33
Pegu,	.....	26,979	.....	1,662,058	.....	62
Tenasserim,	.....	46,778	.....	600,727	.....	13
		88,283	.....	2,747,148	.....	31

The divisions of Arakan and Tenasserim are separated by mountain ranges from the rest of the Eastern Peninsula, and in general the interior of both divisions is also mountainous, the ranges having a general direction from north to south. The only extensive level tract in British Burma is in Pegu, where

the valleys of the lower course of the Iráwadi and Sittang form a rich alluvial tract of about 10,000 square miles in area. The islands off the coast of Arakan and Tenasserim are all very fertile. The annual rainfall in British Burma varies from less than 60 inches in some places to 190 inches in others, and from June to August the rains are so heavy as to cause the rivers to inundate the surrounding country. Only a small portion (about one forty-fifth) of the country is as yet under cultivation, although about four-ninths of the whole area is said to be capable of cultivation, and agriculture is steadily extending year by year. The agricultural products are rice, tobacco, cotton, sugar, and pepper. Timber, chiefly teak, covers nearly all the hills and mountain slopes, and a greater revenue is derived from forests in Burma than in any other province in India. Wild animals are numerous and of great size. Wild elephants roam about in large herds. The military roads constructed by the British are the only roads in the province. There is a railway 163 miles in length from Rangoon to Prome. The inhabitants are mainly Burmese, speaking the same language and professing the same religion (Buddhism) as those of the Burmese kingdom. In Pegu there are remnants of a more ancient population called the Mon or Talain, and on the hills there are various distinct tribes. Among the latter may be mentioned the Karens, who inhabit also an independent territory beyond the boundaries of British Burma. Those within the boundary are claimed as converts to Christianity. The Burmese generally are well housed and well clothed. The houses are built of bamboo, and raised on platforms so as to be above the level of the annual floods. Silk is, as among the Assamese, the favourite material for dress among all classes. The provinces of Arakan and Tenasserim were ceded to the British after the first Burmese war in 1826, that of Pegu was annexed by proclamation of the viceroy in 1853 after being conquered in the second Burmese war.

Principal Approach to the Golden Dagon Pagoda, Rangoon.

The principal towns in British Burma have grown with great rapidity since the time of the British occupation. Rangoon (Rangún; in 1872, 99,000; in 1876, estimated at 108,000) is the seat of government, and stands on a branch of the Iráwadi bearing the same name as the town itself. As a port it ranks

next after Madras among those of British India, and as its foreign trade (which already exceeds £5,000,000 annually) is steadily increasing it promises eventually to outstrip the latter port. The staple exports are timber and rice, the chief imports manufactured articles. About two miles from the town is a famous Buddhist temple, the Golden Dagon Pagoda, 400 years old, regarded as possessing peculiar sanctity from being the depository of relics of the last four Buddhas. It rises in stories of diminishing size, finely proportioned to one another, from an octagonal base of 1355 feet to a spire of small circumference above 500 feet high, and is capped by the sacred *tee* (umbrella). The surface of the building is painted, gilt, and inlaid with mirror glass, and the sacred tee even with gold plates and diamonds presented by the King of Burma in 1871. Moulmein (Múlmain, 46,000), in Tenasserim, is another important seat of commerce with a fine port. Akyab (15,000), the chief place in Arakan, has grown from a mere fishing-village to a port with a foreign trade of from £1,000,000 to £1,500,000 in annual value since it came into the hands of the British in 1826.

The **Andaman** and **Nicobar Islands** in the Bay of Bengal, the former with an area of about 1700, the latter one of about 1870 square miles, are included under the same administration with British Burma. Both groups are covered with a dense tropical vegetation. The Andamáns have a population of about 2500 in the lowest stage of barbarism. The inhabitants of the Nicobars, a tribe akin both to the Malays and Hindus, numbering from 5000 to 8000, are rather more civilized. On both groups a penal settlement has been established by the government of British India. That on the Andamán Islands is at Port Blair, which stands on the east side of South Island on a fine creek 7 miles long; that on the Nicobars (established in 1869) at Nankauri on the island of the same name. The convicts are employed in making roads, felling timber, and performing other works designed to render the islands more habitable.

PRESIDENCY OF MADRAS.

The Presidency of Madras extends along the greater part of the east coast of the peninsular portion of India and occupies also the southern extremity and south-west coast. It is divided into twenty-one districts, the most densely populated of which is Tanjore (Tanjávúr), on the delta of the Káveri, with a population of 540 to the square mile, and the least densely populated Karnúl, with a population of 128 to the square mile. The area of the whole territory of this presidency under British administration is 138,856 square miles, the population in 1871, 31,726,613, which gives an average density of 228 to the square mile. In 1877 the population of some districts (especially Ballári and Kadapa) was greatly reduced by a terrible famine, which is estimated to have carried off nearly 1,360,000 people.

The physical features of the Madras Presidency have already been described with as much detail as is compatible with the plan of this work in the general

account of India. As regards climate this presidency is on the whole the hottest region of India. Except on the west coast its rainfall is chiefly due to the north-east monsoon, which begins to prevail in October; but there are certain districts, particularly Coimbatore (Kóyambuttúr), which receive rain from both monsoons, the south-west (in June, July, and August) as well as the north-east. This is chiefly due to the fact that in the west of this region the Pálghát valley, through which the railway from Madras to Beypore (Bépur) has been carried, forms a gap in the Western Ghâts, and through this gap the south-western rains find admission to the interior. The districts most deficient in rain are the inland districts of Ballári, Kadapa, and Karnúl. Throughout the greater part of the presidency tanks are the chief sources of water for irrigation; but in the deltas of the Godávari, Krishna, and Káveri anicuts or dams have been constructed in the courses of the rivers so as to secure a permanent supply of water for irrigating the surrounding districts by means of a network of canals. On the last-mentioned river this system of canals is so complete as to render the district (Tanjore) one of the most productive in India.

The grain most abundantly grown as the food of the people is the small-grained dark kind of millet called *rági*, and the principal other grains are other sorts of millet, rice, and maize. The chief commercial products of the agriculture of the presidency are cotton (grown chiefly in Kadapa, Ballári, Karnúl, and Tinnevelly), and coffee (in the Wynaad district and the Nílagiris). Other products are oil-seeds, tobacco (especially in Godávari), indigo, cinchona (in the Nílagiris), tea, sugar, pepper, cardamoms, all kinds of fruit, and a variety of drugs, dyes, &c. In the district of Nellúr a fine breed of bullocks, much in demand for draught throughout India, is reared. The chief mineral products are iron (in South Arcot and Malabar), copper (in Nellúr and the Eastern Ghâts), magnesia (in Salem), and gold (recently discovered in the Wynaad district). The principal manufactures are cottons (mostly domestic but to some extent also in mills), silks, and carpets. Important pearl-fisheries are carried on off the coast of Tinnevelly (Tirunelvéli), though they are not so valuable as those of Ceylon. The amount of water communication in the presidency is extremely limited; but the roads, on the other hand, are numerous and well made, often lined with trees and furnished at intervals with houses for shelter, in some of which food is supplied free of charge to all travellers.

The languages of this presidency are chiefly the Dravidian dialects, Tamil, Telugu, Kanarese, and Malayálam or the Malabar dialect. Maráthí and Gujaráthí are spoken in the northern and north-western parts of the presidency, Uríya in the extreme north-east, Hindustání everywhere by the Mohammedans, and English by a certain proportion of the people in all districts. There are besides a number of distinct dialects spoken by the more barbaric tribes in the mountains. Among these tribes one of the most remarkable is the Yénádis in Nellúr, a short dark-coloured race subsisting on roots, fruits, rats, and fishes, and described as faithful and honest, and capable of enduring great fatigue. In the district of Vizagapatam there is a rugged tract (Jaipúr) of about 10,000 square miles in extent, inhabited by Khonds, a semi-barbarous tribe chiefly engaged in

hunting, and governed under British control by their own zemindars or chiefs. The most heterogeneous population in the presidency in respect of language and religion is that of Malabar. It is in this district that the Thomas Christians are found.

The nucleus of the Presidency of Madras was formed by a small piece of land on which the city of Madras now stands, acquired by the East India Company in 1639. In 1759 the Northern Circars (Ganjám, Vizagapatam, Godávari, and Krishna) were seized from the French by Clive. The Carnatic (composed of the south-eastern districts) was brought virtually under the control of the English by the same officer in 1761, and its administration was directly assumed by the British in 1801. Tanjore was made tributary to the company in 1772, and was brought under direct British administration in 1855. Salem (Sélam) was ceded

The Black Town, Madras.

by the Rája of Mysore in 1792, and in the same year Malabar was seized by the British to protect it from the ravages of that rája. In 1799 Coimbatore and South Kanara were also acquired from Mysore, and finally the districts of Kadapa, Ballári, and Karnúl were ceded by the Nizám of Haidarábád in 1800.

Madras (398,000), the capital of the presidency, on the Coromandel coast, is the third town in India in respect of population, and also the third in rank among the ports of India, though its commerce and shipping are far behind those of Calcutta and Bombay. For commerce and shipping indeed it is badly situated, standing on an exposed surf-beaten shore, with which ships must communicate by means of boats and a long and well-constructed pier. A harbour has been for some years in course of construction. The portion of the town inhabited by the natives consists of narrow crooked streets crowded together, while the more spacious and better built European quarters spread over a wide area. The town and shipping are defended by the fort of St. George, built in 1639. Trichinopoly (Tiruchirápalli; 77,000), on the Káveri, is celebrated for its jewelry, saddlery, hardware, and cutlery. Tanjore (Tanjávúr; 52,000) has manufactures of silk, cotton, and muslin, and possesses a pagoda of fourteen stories, considered

the finest in India. Madura (Mathurai; 52,000), a very old but clean town, has remains of a Hindu university founded about 500 A.D. Ballári (52,000) occupies a fortified granite rock in a rich district covered by the black soil so well adapted for the growth of cotton. Salem (Sélam; 50,000) has a trade in *wutz* or Indian steel made from magnetic iron ore found in the neighbourhood.

The principal native states of the Madras Presidency are TRAVANCORE and COCHIN, which adjoin one another in the extreme south-west. The area of the former is 6730 square miles, the population 2,300,000; the area of the latter 1361 square miles, the population 601,000; the average density of population in the whole region about 360 to the square mile.

Both states consist of well-wooded mountains in the east, and rich plains further west, and are partly lined by strips of land covered with cocoa-nut trees between the sea and the backwater or series of lagoons. Rain falls almost throughout the year. The agricultural products are the same as those of Mysore and the adjacent districts of the Madras Presidency. The roads are good, and so also are the natural water communications. Education is well advanced, and in general the progress of both states is so satisfactory that, according to an official report, "if all the native states of India could bear comparison with Cochin and Travancor, the British districts would have to look to their laurels." Cochin became tributary to the British in 1793, Travancore in 1795. Trevandram, the capital of Travancore, is a town of considerable size.

PUDUCOTTA (Pudukóttai) is a native state, largely covered with dense jungle, lying to the south of the district of Tanjore, and under the government of a prince called by the English the Tondiman. The state pays no tribute, a privilege granted to it as a reward for its long-continued fidelity to the British. Area of the state 1380 square miles; pop. 317,000, or about 230 to the square mile. The other native states of the Presidency are BUNGANAPILLY and SUNDUR, neither of which has an area of 250 square miles.

THE LACCADIVE ISLANDS are a group of small coral islands off the Malabar coast, producing chiefly cocoa-nuts, and inhabited by a harmless Mohammedan people called Moplays, who pay a small tribute to the Madras government. The total area is about 744 square miles; pop. 7000.

PRESIDENCY OF BOMBAY.

This Presidency extends along the west coast of India and is divided as shown in the table on the following page.

The Presidency of Bombay is for the most part mountainous or hilly except in the north (Sind and Gujarát). The southern parts of the presidency are well supplied with moisture, while Sind is the most arid district in all India, and is wholly dependent for its cultivation on the inundations of the Indus, a circumstance to which the latter territory owes the name of "Little Egypt," which is sometimes applied to it. The products of the southern districts are similar

Divisions.	Area in sq. miles.	Population in 1872.	Pop. per sq. mile.
Deccan (Dakhan), ...	53,844	7,966,061	148
Konkan, ...	13,577	3,259,776	240
Gujarát, ...	10,082	2,810,522	279
Sind, ...	46,599	2,192,415	47
Cantonments and Railways, ...		120,432	
Total,...	124,102	16,349,206	132
Native States, ...	66,410	6,784,482	
	190,512	23,133,688	

to those of Madras, except that cotton (which is one of the great staples of Bombay, in some years occupying more than a tenth of the whole area under cultivation) is much more widely cultivated than in the latter presidency. In Sind the products are the same as those of Northern India generally. Oil-seeds and tobacco are grown in almost every district. The food grains chiefly grown throughout the presidency are the two species of Holcus known by the native names of *bajri* and *jowári*. The forests extend in the southern half of the presidency from Kanara to Mahí. In Sind (where they are all government reserves) they occupy the banks of the Indus, having a total area exceeding that of the county of Suffolk. Cocoa-nut palms form an almost unbroken fringe along the coast. The manufactures of this presidency are relatively important. The chief are cotton (carried on, as elsewhere stated, to an increasing extent in factories), silk (chiefly in the Deccan division and Sind), paper and leather (in Sind), the leather being of a very solid and durable quality, swords and firearms (in Sind), coarse pottery, &c. The means of communication, though undergoing improvement, are still very deficient. In the wet season all traffic is stopped. The majority of the population are Márathas, and among other tribes Gujarátis and Bhíls are the most numerous. The dialects used are Márathí and Kanarese in the south, Gujaráthí by the merchants of the north-west, Sindhí as well as Baluchí, in Sind. The first establishment of the East India Company in the Bombay Presidency was planted at Súrat in 1612. The greater part of the territory in the southern half was acquired by the British in 1818. Sind was conquered from the native amirs in 1843.

Bombay (644,000), the capital of the presidency, is situated on a narrow point of land at the south-eastern extremity of a small island of the same name, which is connected with the neighbouring coast by an artificial causeway. Like the other two great capitals of India it has a native or Black Town as well as a European quarter, the latter being surrounded with fortifications. Most of the European population, however, live in bungalows with large inclosures called compounds in various parts of the island. Among the inhabitants of the native quarter a large proportion are Pársis, who form the trading class of the community. In general the population of this city is as motley a one as is to be found in any city of the globe. The harbour of Bombay is the largest and

safest in India, and the foreign commerce of the port is only exceeded by that of Calcutta, Bombay having on an average about 40 per cent of the whole foreign commerce of India, while Calcutta has only a little more than that. Bombay came into the possession of the English in 1661, when it was made by the Portuguese part of the dowry of the princess Catherine of Portugal on the occasion of her marriage to Charles II. In 1668 it was transferred by Charles to the East India Company. Since 1859 it has been the seat of a university. Púna (119,000), till 1818 the residence of the Péshwas (or Márátha princes of the Deccan), is an important military post and possesses one of the largest cantonments in India. Ahmadábád (117,000), founded by Ahmad Shah of Gujarát in 1412, is remarkable for its numerous relics of former grandeur, among which the

View from the Top of the Bhor Ghâts (Konkan division, Bombay Presidency).

most noticeable are the Jama Masjid or great mosque, the mosque of Sujat Khan, and the ivory mosque. Súrat (107,000), though no longer possessing the importance that it once had, still carries on a considerable trade in cotton and grain. Haidarábád (41,000), the capital of Sind, situated on a rocky eminence near the Indus, is the scene of the final defeat of the armies of Sind by Sir Charles Napier in 1843. Karáchi (54,000), the chief port of Sind, ranks fifth among the ports of India, and has had large sums of money expended by the government on its harbour.

The principal native states of the Bombay Presidency are those of Cutch and Gujarát. CUTCH (KACH) is a long narrow peninsula between the Gulf of Cutch and the Runn (Ran), governed by a chief called Ráo, under whom are a number of minor chiefs holding their domains on a military tenure, and forming a kind of council of the Ráo. The musk-melons of this district are famous. The capital is Bhuj. The Ran (a corruption of the Sanskrit *aranya*, a waste) is an expanse, which in the dry season is for the most part a sandy waste, varied with pools of water, incrustations of salt, and patches of vegetation, and in the wet season is a shallow lake. Several roads cross it at the narrowest parts, but

it is said to be almost certain death to use one of these by day except during the rainy season. The area of the district is 6500 square miles, the population 487,000, or about 75 to the square mile.

GUJARAT is the territory embracing the peninsula of Kathiawár and the region lying to the east of that, and comprises, in addition to the native states belonging to the Kathiawár agency (with a total area of 20,338 square miles, and population of 2,313,000, or about 114 to the square mile), certain districts under British administration and the native state of Baroda under the government of India. It is for the most part flat, but is traversed by some hills in the east. Its products are those of Northern India (including cotton). Among the animals of the district are the wild ass, and wild cattle resembling the bison, which are found in the uncultivated tracts, and among birds the flamingo is conspicuous. Rájputs, Jains, and Brahmans are numerous.

FOREIGN POSSESSIONS IN INDIA.

THE FRENCH POSSESSIONS are all, except Chandernagore above Calcutta, in the Presidency of Madras. In addition to Chandernagore they comprise Pondicherry (Puduchéri), Karikal (Karakal) and Yanaon on the east coast, and Mahé (Mayyali) on the west or Malabar coast. The principal of these possessions is Pondicherry, which with the district round it has an area of 113 square miles. The district is not very fertile. Some rice, tobacco, betel-nuts, cotton, and cocoa-nuts are raised; and these, with guinees or fine cotton cloths dyed blue, Indian handkerchiefs, and cotton yarn, form the chief exports. The imports consist chiefly of lace, fancy goods, jewelry, furniture, &c. The town has a European quarter facing the sea, and a native quarter separated from the former by a canal. The trade is declining, there being no harbour, but only a roadstead, on which the surf beats almost as strongly as at Madras. Pondicherry was acquired by the French from the King of Bijápur in 1672, and after being several times taken by the British was finally restored in 1815. Chandernagore has a population of 23,000, but is a place of no importance. Its trade is utterly insignificant, but the British pay a considerable sum for their monopoly of the trade in salt and opium, the trade in which is forbidden at Chandernagore, under a convention between France and the government of India. The total area of the French possessions is 178 square miles; and the population amounts to about 271,000.

THE PORTUGUESE POSSESSIONS are all in the Presidency of Bombay, and consist of Goa, near the south of the presidency, Damán, about a hundred miles north of Bombay, and Diu on the peninsula of Kathiawár. Goa is a considerable district, having an area of 1062 square miles, and is a well watered and fertile tract, producing rice, pepper, cocoa-nuts, betel, and salt. Its capital, which is of the same name, has been in the possession of the Portuguese since 1510, when it was taken by Albuquerque; it has now lost all the grandeur it possessed at the time when the Portuguese wielded an extensive power in India, but

its harbour has a magnificent appearance and is little inferior to that of Bombay. Diu is now completely decayed. The total area of the Portuguese possessions is 1086 square miles, and the population 408,000.

NEPÁL.

Nepál is a kingdom in the north of India, on the south-west slope of the highest part of the Himálaya range, having Bengal and the North-west Provinces

Gaurisankar, or Mount Everest, the highest mountain on the Globe.

on the south. To it belong the highest mountains in the world—Mount Everest or Gaurisankar, Daulagiri, and Kanchinjinga, the last on its eastern borders. From the mountains southwards the land gradually descends, forming four distinct terraces, differing in climate and vegetation. The climate is on the whole temperate, but varies greatly in different localities. Magnificent forests of sál, sísu, and other trees stretch along the declivities of the lower hills into the adjacent plains. The forests higher up exhibit a greater variety, gradually assuming more and more of an Alpine character. The principal products are

rice, wheat, millet, and other grains, sugar-cane, fruits (especially oranges), &c. In the mountainous parts a valuable article of cultivation is a large species of cardamom, and in other places ginger is grown to a considerable extent. Pasturage is on the whole scarce and indifferent. The sheep and goats, however, have fine wool. Among minerals copper and iron are worked in the hills. The manufactures of Nepál are confined chiefly to two kinds of coarse cotton cloth, called *khadi* and *changa*, of which the dress of the middle and lower classes of the people is made. The whole dress of the higher ranks is imported, and consists chiefly of Chinese silks and of the low country muslins and calicoes. The military alone wear European broad-cloth. Articles in copper, brass, and iron are also manufactured in various places; likewise bells of a kind of bell-metal called *phul*, but considered inferior to those of Tibet; and also a very strong paper, remarkably well fitted for packages. The inhabitants are chiefly Ghurkas, the ruling race, Hindus by descent and religion, Newars, a race probably of Mongolian and Chinese origin, and Bhutías, who live high up in the mountains adjoining Tibet. There are also several aboriginal hill tribes. The Ghurkas are a warlike tribe, and now supply excellent troops to the Indian army. The Newars and Bhutías are Buddhists. The ordinary language of Nepál is the Párvatíya or mountain Hindu dialect, but the Newars have a language peculiar to themselves. The food of the poorer classes consists of rice, garlic, and lentils. All classes are said to be addicted to the excessive use of intoxicating drinks. Most of the domestic servants are slaves. The country formerly extended west to the Satlej; but in 1814 the country was invaded by the British to punish depredations committed by the Nepálese, and on the conclusion of the war all the territory west of the river Kali was annexed to the British dominions. The government of the country is despotic. The ruler acknowledges a certain amount of dependence on the Chinese government, and every five years sends an embassy to China in token of his fealty. He is also obliged to suffer the presence of a British resident and a small body of British troops at his capital, Khatmandu. This town, which has a population of from 35,000 to 50,000, has a fine appearance. Its streets are well paved, its houses pretty, and there are numerous temples rising here and there in the midst of gardens. The area of Nepál is about 56,700 square miles, the estimated population 200,000, or about 35 to the square mile.

Ghurkas.

BHUTÁN.

Bhután is an independent state in the north of India, between Bengal and Assam on the south and Tibet on the north. It is traversed from east to west by three parallel ranges of mountains, the northernmost of which is the main chain of the Himálayas. The most fertile land in the country (forming what is known as the Duárs) all lies to the south of the southernmost range, and a large part of the remaining territory is barren and uninhabitable. The climate presents in different localities at the same time even greater contrasts than that of Nepál, exhibiting in fact nearly all the gradations between the cold of Siberia and the heat of Africa. Thus we find the trees and shrubs of Northern Europe in sight of the rank vegetation of the tropics. The agricultural products are rice and millet. The domestic animals chiefly reared are sheep, ponies, and a hardy breed of cattle. The chief manufacture is that of paper made from the bark of a tree. The Deb Rajah is the ruler in temporal affairs; but there is also a spiritual ruler, the Dherma Rajah. Their rule is more nominal than real, however, there being several almost independent chiefs. A yearly tribute is paid to Tibet. The inhabitants are robust, active, and courageous. They profess the Buddhist religion, of which there are numerous priests, who live in idleness at the expense of the rest of the people, and enjoy as a class even greater comforts and luxuries than the chiefs. The tillers of the soil are very poor and live in wretched huts. The capital is Panakha. The Bhutánese have often given trouble to the English; and in 1865 they had to cede a part of their territory (the Duárs now included in British Kuch Bihár). As, however, Bhután is mainly dependent on the Duárs for revenue, the government of India has agreed to allow the ruler of the state a subsidy of £5000 during good behaviour as compensation for the confiscation of these districts. The total area is about 10,000 square miles, the estimated population only 20,000.

CEYLON.

Ceylon (called by the natives *Singhála*, by the ancients *Taprobana* or *Taprobane*) is an island belonging to Great Britain in the Indian Ocean, 50 to 60 miles south-east of the south extremity of Hindustan, from which it is separated by the Gulf of Manaar and Palk's Strait. Its length from north to south is about 270 miles; average breadth, 100 miles; area 24,700 miles. The population in 1871 was 2,405,000; in 1878, 2,607,000, or about 105 to the square mile.

PHYSICAL FEATURES.—The mountainous regions of Ceylon are confined to the centre of the south and broader part of the island. They gradually diminish to hills of moderate elevation as they recede from the central mass. Their average elevation is somewhere about 2000 feet, but there are several sum-

mits rising above 7000 feet in height. The highest is Piduru Talagala (8295 feet), although the best known and most conspicuous is Adam's Peak (7352 feet). The forms of the mountains of Ceylon are singularly varied. They most frequently occur connected in chains, and terminate in round or peaked summits. Their sides are always steep, and occasionally precipitous and rocky. Solitary insulated mountains are of rare occurrence, but in some districts even adjoining mountains do not correspond with any regularity in their direction. There is no proportional correspondence between the heights of the mountains and the depths of the adjoining valleys, and often the valleys are extremely narrow. The deepest are in the heart of the mountains. Some are between 3000 and 4000 feet deep, and not over half a mile wide. Round the mountains there is a belt of level and fertile country of about forty miles in breadth. Between the island of Manaar on the north-west coast of Ceylon (lat. 9°), and the island of Ramiseram on the opposite coast of India, is a ridge of sandbanks called Adam's Bridge, which nearly connects Ceylon with the continent, there being only three narrow and shallow passages through the ridge, the remainder being covered with only 2 or 3 feet water at full tide. All of these channels, however, are impracticable except for boats or very small vessels. The rivers of Ceylon are numerous but small, the longest being the Mahávelli-ganga, which falls into the sea by a number of branches near Trinkomalí, after a course of 134 miles.

CLIMATE.—Where the jungle has been cleared away, and the land drained and cultivated, the country is perfectly healthy. The heat is not so great as on the neighbouring coast of India, the sea-breezes moderating the temperature. At Colombo, on the west side of the island, near the 7th parallel of N. lat., the mean daily variation of the temperature does not exceed 3°, and the annual range of the thermometer is from 76° to 86° 30′ Fahr. The east part of the island being exposed to the north-east monsoon has a hot and dry climate, resembling that of the coast of Coromandel; while the west division, being open to the south-west monsoon, has a temperate and humid climate like that of the Malabar coast. The interruption which the course of the monsoons meets with from the mountain ranges of the island causes deluges of rain to fall on one side, while the other is parched with drought. The average annual rainfall at Colombo is about 100 inches. The prevalent diseases are those of the liver and intestines, often accompanied by fever. Elephantiasis and other cutaneous complaints are common. The disease called beri-beri (*hydrops asthmaticus*) occasionally occurs, being almost peculiar to the island.

VEGETABLE AND OTHER PRODUCTIONS.—In the luxuriance of its vege table productions, Ceylon rivals the islands of the Indian Archipelago, and in some respects bears a strong resemblance to them. By far the most important of its products is coffee, for the growth of which the greater part of the surface is admirably adapted. Cotton, sugar-cane, and tobacco, pepper, cardamoms, cinnamon, areca-nuts and rice make up the other principal agricultural products. For the rice cultivation considerable irrigation works have been constructed by the government, especially in the eastern province. Government has also begun to direct attention to the cultivation of tea, cinchona, and silk, with a view to

render the island less dependent on a single article of produce. The cocoa-nut trees grow along the coast in countless numbers; the palmyra-palm is abundant in the north. The taliput-palm also abounds, as do also the jack and bread-fruit trees. The island abounds with timber of various descriptions, including calamander, satin, rose, sapan, iron, jack, halmalille, and other beautiful woods adapted for cabinet work. All the animals of India except the tiger are found in Ceylon. Elephants are numerous, and though the variety is small they are valued on account of their docility.

Ceylon is remarkable for its richness in gems, and equally so for its poverty in the useful metals. Most of the gems for which the island is celebrated occur in granite rock, though also found washed down in alluvial soil in the beds of rivers. The gems include all the varieties of quartz, as rock-crystal, amethyst, rose-quartz, cat's-eye, and prase. Rock-crystal occurs in abundance, both massive and crystallized, of various colours, of good quality, and in large masses. Amethysts of the most beautiful kind are also plentiful, and the finest cat's-eyes known are those of this island. Garnets, cinnamon stone, zircons, and rubies are also among the gems of Ceylon. Nitre, alum, and salt are also plentiful. Pearls are obtained in the Gulf of Manaar. The fishery is a government monopoly, but the revenue derived from it is not a regular one, the fishery sometimes failing for years in succession. There was no fishery, for example, between 1837 and 1854 or between 1863 and 1874.

MANUFACTURES, TRADE, &c.—The manufactures of Ceylon are very unimportant, with exception of arrack, which is extracted from the blossoms of the cocoa-nut tree. Weaving, though little progress has been made in the art—and the produce is generally of the coarsest kind—gives employment to many persons. The articles manufactured are handkerchiefs, table-cloths, napkins, towels, sail-cloth, but chiefly a coarse kind of cloth, used for their dress by the natives. There are also numerous oil-mills for pressing the cocoa-nut kernels to express the oil. The Singhalese are expert workers in gold and silver, and excel in the manufacture of lacquered ware. Salt is now collected by government officers from shallow lagoons, called, in the colony, *leeways*, which at certain seasons are overflowed by the sea; or it is manufactured in pans, the property of the government and let for that purpose. The exports are chiefly the produce of the soil, the principal of which are coffee (nearly three-fourths of the whole value), cinnamon, cocoa-nut oil, and coir. The trade of Ceylon is chiefly carried on with Great Britain and India, the former of which receives more than four-fifths of the exports, but sends less than one-fifth of the imports. Rice is imported in considerable quantity from the Malabar and Coromandel coasts. Sugar, tea, and manufactured articles are also considerable imports. The roads of the island are good, and railways have been introduced.

PEOPLE AND LANGUAGE.—The population of the island of Ceylon is composed of a number of elements, which differ from one another not only in race, but also in language and religion. The most numerous section of the population is the Singhalese, who number upwards of 1,500,000, and inhabit the south-west where the population is densest. They are a mild and timid race, obsequious to

strangers, but hospitable and humane. Their stature is rather below the middle size; their limbs slender but well shaped. The colour varies from the lightest to the darkest tints of bronze. They marry early without much ceremony, but often separate again by mutual consent. The caste system has been introduced among them from India, but here is purely a social and not a religious institution, and it is not so rigorously adhered to as on the mainland. They speak a language (the Singhalese or Elu) which is regarded by philologists as belonging to the Indo-European family. In the north-east of the island there are about three-quarters of a million of Hindus speaking the Tamil language. In the forests of the interior there are a few thousand members of a tribe called the Veddahs, who are supposed to be survivors of the original inhabitants of the island, and belong to a very low stage of civilization. Their huts are generally placed for security among the branches of large forest trees. Throughout the island there is a considerable number of Mohammedans, mostly descendants of Arab adventurers. The remainder of the population is mainly composed of Europeans and Eurasians, many of the latter of whom fill subordinate situations under government.

RELIGION.—The people in the north-east are Hindus in religion as well as in race, and there is also a considerable number of Mohammedans and Christians. The former are mainly descendants of Arab adventurers as already mentioned, the latter consist of descendants of European settlers of various origin, and of native converts. Christianity made no little progress during the period in which the island was in the hands of the Dutch (about a century and a half), and Ceylon is still the scene of active missionary operations on the part of Christian churches. But the Singhalese are for the most part adherents of Buddhism, which was introduced into the island in the third century B.C. by missionaries of Asoka, the great Buddhist king of India, and which is still observed there with a degree of purity nowhere exceeded.

The system of Buddhism, founded in Northern India, apparently in the fifth century before the Christian era, by a sage of the most exalted character, is remarkable above all for two things, the hopelessness that distinguishes its philosophy of life, and the elevation of its morality. Its founder, Siddhártha Gautama,[1] the heir to a throne, retired in early manhood into solitude in order to lead the life of a saint according to the ideas then prevalent among the Hindus, that is, to give himself up to the practice of penance and self-mortification. In this, however, he found no permanent satisfaction, and sitting one day under the shade of a large tree (a *Ficus religiosa*), henceforth known as the sacred *bo-tree* or tree of wisdom, he underwent a severe mental struggle, in consequence of which he became Buddha, that is, "the enlightened;" his mind was illumined with those ideas which enabled him to become the founder of a new system. He was strongly impressed with the utter vanity of all existence, and became filled with

[1] Siddhártha is his individual name, Gautama his family name. The tribe to which he belonged was that of the Śákya, and he is hence also known by the appellations of Śákya-muni (the Śákya sage), and Śákya-sinha (the lion of the Śákya). Most commonly he is spoken of as Buddha, which, as stated in the text, is also an attributive epithet.

the belief that the only way in which the human heart can find rest is by self-conquest, that is, by the extinction of every desire that makes one cling to existence, and by the exercise of love to others. On being enlightened with these ideas he at once determined to return to the world to proclaim his doctrines and thus accomplish the salvation of mankind from the sorrows with which their life was necessarily encompassed. He taught no belief in a supreme being or a future state of conscious existence. On the contrary, the consummation that he seems to have looked forward to as above all things to be desired was the ultimate annihilation of all sentient life. This end, however, could be realized only by observing the conduct that he inculcated. For though there is, in the Buddhist view, no future life in which a man is conscious of continued or renewed existence, yet every sentient being, whether man, lower animal, or spirit (*nat*), by his conduct in life produced a *karma* (or character as it may be rendered) in accordance with which a new sentient being must take his place at death, and this new being is regarded by the Buddhists as having the same individuality with the dead. This is the Buddhist form of the doctrine of the transmigration of souls, as it is called, though this term is improper as applied to the Buddhist doctrine, since according to that system there is no soul. The karma of a man is not necessarily reproduced in a human being, but it may be either in that of a lower animal or a nat, and so also with the karma of either of these forms of sentient existence. There can, however, be no escape from this kind of reproduction until one attains to *nírvána*, that is, the condition in which one has become free from desire for material or immaterial existence, from pride and self-righteousness and ignorance. One who has attained this condition will at death pass entirely out of existence.

But it was by the moral spirit that breathed in Buddhism that it gained its hold upon the people. The new doctrines were preached to all alike, and it was declared to be equally possible for every one, whatever his caste or whatever the condition in which he was born, to attain to the higher life of the Buddhists by obeying the precepts that Buddha promulgated. What the nature of these precepts is, may be gathered from a few of the maxims found in the sacred books of the Buddhists.[1]

"For never in this world does hatred cease by hatred,
Hatred ceases by love; this is always its nature."

"Not where others fail, or do or leave undone,
The wise should notice what himself has done or left undone."

"Let a man make himself what he preaches to others;
The well-subdued may subdue others; one's self, indeed, is hard to tame."

"Let us live happily, then, not hating those who hate us!
Let us live free from hatred among men who hate!"

"Let a man overcome anger by kindness, evil by good;
Let him conquer the stingy by a gift, the liar by truth."

[1] From *Buddhism*, by T. W. Rhys Davids.

The precepts of Buddhism were not only inculcated on people in every condition of life, but Gautama also taught that they might be observed by all in all circumstances. At the same time, however, it was his belief that the higher life could be most quickly attained by those who withdrew themselves from home and kindred in order to lead the life of ascetics. Those who did so came to form societies or orders of monks, who, like those of Roman Catholic countries, took the vows of poverty and celibacy. According to the rules laid down by Gautama, the acquisition of property was entirely forbidden to the individual monks, who were to live entirely on alms, and are therefore called in the sacred books mendicants; but as the orders were allowed to own property collectively this rule has become almost nugatory. It is through this institution that Buddhism has had the greatest effect upon the social arrangements of those countries in which it has been adopted. Wherever Buddhism has spread there are numerous monasteries inhabited by monks, who in many ways perform the functions of a priesthood. How free Buddhism is, however, from the great blot on the Brahmanical system, the excessive reverence demanded for the priestly caste, will be seen from the following Buddhist precept:—"That mendicant does right who is not found thinking 'People should salute me;' who, though cursed by the world, yet cherishes no ill-will towards it." At the present day the life of a Buddhist monk or priest is devoted chiefly to the performance of ceremonial duties, to the committing to memory of the sacred writings, and repeating portions of these to the people assembled in the temples on certain days. In Ceylon these assemblies take place chiefly in the period called *was* (from the Sanskrit *varsha*, rain), being the rainy season (June to October) in Northern India, the period when Gautama was in the habit of resting from his missionary labours and devoting himself to the teaching of his immediate followers. In Ceylon this is the finest period of the year, and the assemblies are not then held in temples, but in the open air under the palm-trees, where they will sit for a whole night in the moonlight listening to the recitations of the priests.

Singhalese Buddhist Priests and Dágoba at Kandi.

Another prominent feature in Buddhism is the reverence paid to relics of Buddhist saints and especially of Gautama himself. Such relics are carefully

treasured in shrines placed in or on structures called *topes* or *dagobas* of various sizes. Pagodas in Buddhist countries are generally nothing else than large dagobas. In all Buddhist countries images of Buddha himself in all materials and of all sizes are to be seen everywhere.

This is the most appropriate place to give some account of the extension of Buddhism to other countries. In the third century B.C., under King Asoka, it was the prevalent religion throughout the greater part of India, and it was at this time, as we have seen, that it was introduced into Ceylon. Under this noble-minded king, whose name is known and reverenced almost as widely as that of Gautama himself, Buddhism seems to have been still exempt from any serious corruption; and in the royal edicts, which are found engraved on pillars or rocks at Delhi and Allahábád, in Gujarát in the west and Orissa in the east and elsewhere, the system is inculcated in as lofty a spirit as that in which it was conceived by its founder. The following translation [1] of a portion of one of these edicts may be quoted as an example of enlightened toleration that cannot possibly be surpassed:—"A man must honour his own faith, without blaming that of his neighbour, and thus will but little that is wrong occur. There are even circumstances under which the faith of others should be honoured, and in acting thus a man increases his own faith and weakens that of others. He who acts differently, diminishes his own faith and injures that of another. Whoever he may be who honours his own faith and blames that of others out of devotion to his own, and says, 'let us make our faith conspicuous,' that man merely injures the faith he holds. Concord alone is to be desired."

There is good reason for believing that Asoka sent missionaries to Burma likewise, but there is no evidence that these missionaries met with great success, and it is probable that Burma was not converted to Buddhism till the fifth century A.D., when the system was preached there by missionaries who proceeded from Ceylon. From Ceylon also the Buddhist religion seems to have been conveyed to Siam, but not till the seventh century of our era. In the same century it appears to have reached Java, through Buddhist settlers who had proceeded from Gujarát. From Java probably it spread to Bali and Sumatra, but in the latter island it never gained a firm footing. To other regions it spread from its original centre in Northern India. Kashmír was converted to Buddhism about the beginning of the Christian era, and from thence it spread to Nepál, Tibet, and China, and ultimately to Japan and the Mongols of Central Asia. There even appears to be evidence that by the fifth century it had been carried by the Chinese to America. Afghanistan and Turkestan were also temporarily gained over to Buddhism, but in these countries as well as in Java and the neighbouring islands it was afterwards supplanted by Mohammedanism. In the land of its birth it began to give way before a revival of Hinduism about the eighth century, and before the twelfth century it was almost completely extirpated in the Indian peninsula.

In all countries where it is still professed it has been more or less corrupted. The principal corruption that has crept into the system can hardly but be

[1] Given in Emerson Tennent's *Ceylon*.

regarded as a direct consequence of one of its most striking features as it was preached by its founder. The religion of Gautama is the only example of a great religion founded on the supposition that there are no superior beings who interfere in the government of the world. The mass of the followers of the system seem unable to entertain this conception, and have found for themselves objects of worship out of another part of the system of Gautama. We have seen incidentally that Gautama assumed the existence of a class of immaterial beings (*nats*), although he regarded them as having an existence equally transient with that of man. These are in many places where Buddhism prevails worshipped as superior beings (good or evil spirits) having an influence on human life. Offerings are paid to them, enchantments and other means are resorted to in order to propitiate them, and the Buddhist priests have made themselves the intermediaries of these

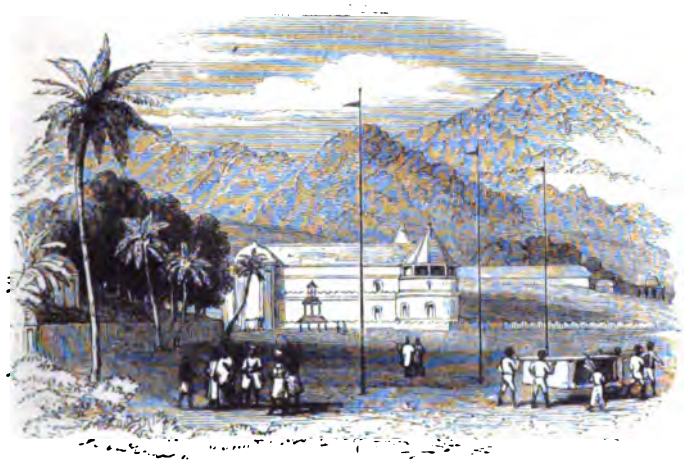
Point-de-Galle.

services. Buddhism has thus to a large extent been degraded into a species of idolatry characterized by the grossest superstition. The worst corruptions are found among the northern Buddhists, and in Tibet especially it has sunk in the form of Lamaism to the lowest stage of degradation.

GOVERNMENT, &c.—The head of the administration of Ceylon is a governor appointed by and directly responsible to the crown. He is assisted by two councils, one legislative and the other executive. The chief sources of revenue are customs' duties, railway receipts, a tax on grain grown in the island, and salt-farms. In 1878 an important law was passed altering the mode of levying the grain tax in such a manner as to diminish instead of increase the burden on the cultivator for every improvement which he makes. The finances of the island are in a thoroughly sound condition. There is a debt, but it is being rapidly cleared off chiefly from the proceeds of the railway traffic.

The first European settlements in Ceylon were made by the Portuguese early in the sixteenth century. The Portuguese were expelled by the Dutch in 1656, and the Dutch in their turn were expelled in 1796 by the English, who after a long war brought the whole island under subjection in 1815.

CHIEF TOWNS AND NOTABLE LOCALITIES.—Colombo (100,000) on the west coast is the seat of the government, and the largest town in the island. Though its harbour is capable of receiving only small vessels the trade carried on at the port is very large. A fine breakwater is now in course of construction. Point-de-Galle (48,000) on the south-west coast is celebrated as a place of call for vessels sailing between Europe and the East as well as Australia. Its appearance when seen from the sea is singularly beautiful and picturesque. To the right is the port with its old walls and fortifications jutting out into the sea. In the centre of the town, and rising above every surrounding object, are the two gable ends of the old church built by the Dutch. Further on is the quay surrounded by multitudes of canoes, while close to the harbour is the native town and bridge, white, and shaded by numerous trees, the whole backed by verdant hills clothed to the summit with woods and the most luxuriant vegetation. The most distant hills assume a purple hue, and far in the rear rises the lofty summit of Adam's Peak. Outside the town is a Buddhist temple with colossal figures upon it. Kandi (17,000) near the centre of the island is picturesquely situated on the banks of a small lake surrounded by finely wooded hills. Newara Ellia or Newaralya, 50 miles to the south, is the principal sanatorium on the island. It stands at the height of 6200 feet above the sea. Trinkomali (8000) on the north-east coast has a fine natural harbour capable of accommodating the largest fleet in the world. Towards the north of the island is the ruined and completely deserted city of Anurádhapura, celebrated in connection with Buddhism. Here stands the Thúpáráma Dágoba built by the first Buddhist king of Ceylon to preserve the right collar-bone of Gautama, and here stands the oldest historical tree in the world, the sacred bo-tree sprung from a shoot derived from the very tree under which Gautama sat when he became Buddha. This shoot was planted in the third century B.C., and there is documentary evidence to show that the tree still growing there is the same as was then planted.



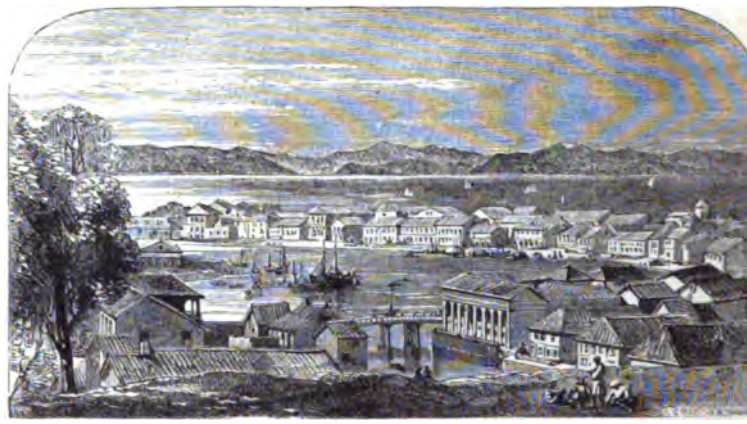
The former Palace of the King of Kandi (now Government Offices).

THE MALDIVE ISLANDS are a remarkable chain of atolls, groups of coral islets, in the Indian Ocean extending from lat. 0° 40′ S. to 7° 6′ N., nearly on the

meridian of 73° 30′ E. The larger islands are richly clothed with wood, chiefly palm, and produce fruits and edible roots in abundance. The inhabitants are a civilized race of Malay origin, Mohammedan in religion, skilful navigators, and much praised for their kindness to shipwrecked sailors. Their ruler, who resides on the island of Male or Mohl, pays annual tribute to the governor of Ceylon. The area of the islands is said to be about 2600 square miles, the population about 150,000.

THE STRAITS SETTLEMENTS.

The British dependencies comprised under this name consist of four detached territories on the Straits of Malacca, namely, the island of Singapore at the



Singapore, from Government Hill.

south-eastern extremity of the Malay Peninsula, the district of Malacca, the island and district of Dinding or Pancore, and the island of Penang (Prince of Wales Island) with Province Wellesley on the west coast of that peninsula. They are all subject to a governor stationed at Singapore, but there is a lieutenant-governor at Penang and Malacca. The total area is 1445 square miles, the population about 350,000.

The climate of all these districts is warm but healthy. That of Singapore in particular is remarkable for the uniformity of its temperature, the annual range of the thermometer, reckoned from the mean lowest to the mean highest temperature, being only about nineteen degrees (71° to 90° F.). The rainfall at the same time is abundant, amounting to from about 60 to 100 inches annually, and in consequence the succession of vegetation is unbroken, and the island enjoys perpetual verdure and perpetual bloom. Nearly the whole of the surface is covered with jungle down to the water's edge, but since the occupation of the island by the British a number of pepper and gambier plantations have been

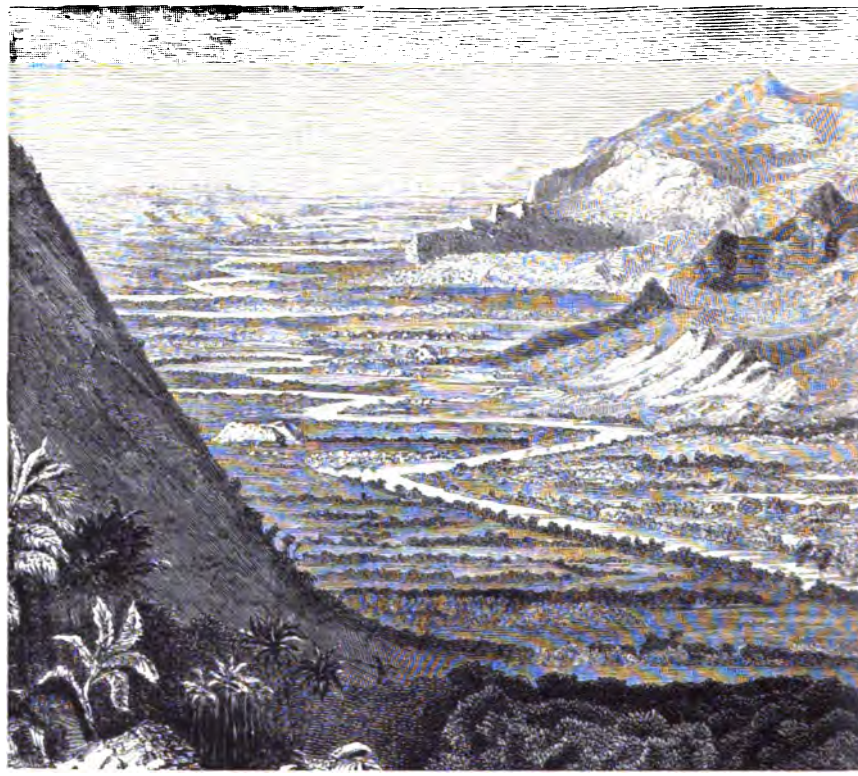
formed by Chinese settlers. All the districts are well fitted for the production of spices, sago, tapioca, sugar-cane, and other tropical and sub-tropical products; but their importance is chiefly due to their trade, which has a total annual value of about thirty millions sterling, nearly two-thirds of it belonging to Singapore. This seat of trade, the most important in the Eastern Peninsula, is entirely a creation of the British. When it was fixed on by Sir Stamford Raffles in 1819 as a suitable spot for a trading settlement the island contained only a handful of people; at the present day it contains more than 100,000. The majority of these are Chinese, and the remainder chiefly Malays, the Europeans numbering only from 6000 to 7000. The town next in importance to Singapore is Malacca, with a mixed population of about 13,000. Malacca is one of the earliest European settlements in the East. It was first occupied by the Portuguese admiral Albuquerque in 1511; in 1641 it was taken from the Portuguese by the Dutch. From 1765 to 1818 it was in the hands of the British, from the latter year to 1824 again in those of the Dutch, and in 1824 it was restored to the British in exchange for the settlement of Bencoolen belonging to the East Indian Company on Sumatra. The island of Penang was ceded by a native prince to the British in 1786, Province Wellesley in 1798, Dinding in 1826, but this last territory was not finally declared British till after the disturbances in Perak in 1874–75.

BURMA.

Burma or Birma is a state belonging to the Eastern Peninsula, immediately to the east of British India and the north of British Burma. On maps Burma is usually represented as extending northwards to Tibet; but the northernmost part of this territory, a wild mountainous region, is in reality inhabited by a number of independent tribes or tribes over whom the King of Burma or his representative exercises an authority little more than nominal. The area that may be assigned to this independent territory is about 18,000 square miles and the population about 200,000; while the area of Burma itself is about 176,500 square miles and the estimated population about 4,000,000, or upwards of 22 to the square mile.

PHYSICAL FEATURES AND PRODUCTIONS.—The mountains in the north, which have a general direction from north to south, gradually decline in elevation towards Burma proper, and end in a hill country in which broad alluvial valleys, covered with the richest soil, spread themselves out on both sides of the rivers, especially the Irâwadi and its tributaries. In the south and east the country again becomes mountainous, and these parts are mainly inhabited by tribes which, though they pay tribute to the King of Burma, are otherwise independent. The amount of water discharged by the Irâwadi is enormous. At Bhamo it has at times exceeded 1,000,000 cubic feet per second, which is about one-third higher than the mean annual discharge per second at the mouth of the Mississippi.

The agricultural products are mainly rice, in the plains and on the lower slopes of the hills, wheat, maize, and legumes in the higher cultivated districts; also cotton (in the middle course of the Iráwadi), sugar, tobacco, and tea, besides abundance of fruit and vegetables. The tea-plant is native in the upper regions, and its product is exported in great quantity to the lower lands. The methods of cultivation are in all cases very defective. The forests are rich in fine timber,



The Valley of the Iráwadi at its confluence with Myit-Nge, about 650 miles from the sea.

especially teak, which forms an important article of trade. The chief locality of this trade is the province of Niengyan in the south, and the centre of the trade is the town of the same name on the right bank of the Sittang in about 20° N. Cattle are reared only for draught and as beasts of burden, since the religion of the people forbids the use of animal food. As in all other parts of the Eastern Peninsula the white elephant is regarded with great reverence. He is kept in great state; special attendants are appointed for him, and one of the most fertile cotton districts in the country is set apart as his domain. Though called white the elephant so honoured is said never to be of that colour. The lighter in colour he is the better is he fitted for the purpose, but a tolerably

dark-coloured elephant may be so distinguished if only he has bright spots behind the ears, and on the trunk and forehead.

Burma is rich in minerals, but the precious metals and precious stones are the only ones that receive any great share of attention. Gold is obtained in the upper parts of all the rivers, and silver is worked by the mountain tribes of the east. A snow-white marble is quarried and is much used for statues of Buddha, and a beautiful transparent kind of serpentine is obtained in nodules from boulders of jade. The precious stones include rubies, sapphires, amethysts, topazes, and others, sometimes of great size, and are found in the beds of some small brooks about five days' journey to the north-east of Ava. All those whose value exceeds about £3, 10s. are claimed for the royal treasury. Among other minerals may be mentioned iron, which is found in great purity, and lead. Petroleum is another important mineral product, and furnishes the chief illuminating material used by the Burmese. There are likewise rich mines of amber in the Hookong valley south-east of the Patkoi range, by which Burma is separated from Assam. The principal manufactures of the Burmese are bells, weapons of war, paper made from bamboo fibres, and cotton and linen cloth. The Burmese are remarkably fond of bells, and sometimes make them of great size. They have not, like our bells, suspended hammers, but are hung low and struck with detached hammers that are kept lying beside them. The trade of the country is chiefly carried on by means of the river Iráwadi, on which the British now maintain steam communication between Rangoon and Bhamo. It was long hoped that a trade route might be opened up by this river and valley to south-western China, but the most recent expeditions that have followed this route seem to have proved that there is no reasonable prospect of this. "The trade route from Yünnan-fu to Momein," says Mr. Baber, the author of a report on one of these expeditions, "is the worst possible route, with the least conceivable trade." Yet the existence of a road between these points constructed at an immense expenditure of labour, sometimes up ascents of 3000 and even 6000 feet or across tremendous chasms, shows that at one time there was a trade by this route, but it is now in all probability for ever abandoned since the commodities of south-western China have found a more convenient outlet to the south-east by water.

PEOPLE, LANGUAGE, RELIGION, &c.—The main body of the inhabitants of Burma are Burmese proper, or Mranma as they call themselves, who inhabit the valley of the Iráwadi both in its middle course (Upper Burma) and its lower course (British Burma). They are small, well-proportioned of a brown (never dusky) complexion, and are distinguished from neighbouring nations by their superior vivacity and good-humour. Towards strangers they are polite and hospitable, but even to Europeans never servile. As a rule they are very open and candid, and make good faithful servants. The head of a Burmese household is indeed said to make, as a rule, a very affectionate husband, and in no eastern country is so much freedom allowed to women. Polygamy is lawful, but rare. Both marriage and divorce can be effected with very little ceremony, but for all that separation between man and wife is by no means common. The

chief amusement of the Burmese is their theatre, where declamation, dancing, and music alternate. The new year is celebrated with all sorts of purification. At this time young women appear in public with water and sprinkle every one they please. It is considered improper, however, to sprinkle females first, or those in a state of pregnancy at all. Among the Burmese the distinguished dead are burned; the poor are interred; the richest are embalmed, commonly in the ancient simple mode, namely in honey. The language of the Burmese is monosyllabic, but the sacred language, the language of religious services as well as of the Buddhist Scriptures, is the Pali, a dialect of Sanskrit. The ordinary writing materials are carbonized paper and a pencil of steatite, but in the case of documents intended for preservation the writing is most commonly executed on dried palm-leaves by means of an iron style. The books in the libraries of the rich have leaves made of thin pieces of ivory, with gilt edges. The Burmese in general are fond of gilding everything. The literary Burmese translate from the English all important works of science, particularly on astronomy and law. Houses and other buildings among the Burmese are very slight, as the government requires them to be chiefly of wood or bamboo, and prohibits the use of stone or brick except for pagodas and other religious edifices, and buildings intended for the king himself. Even these buildings, however, are in most cases of wood. The king's palace itself is essentially a wooden erection, elaborately carved, lacquered, painted, and gilt.

The indispensable part of the dress of both sexes is a piece of cotton cloth from two to three yards long and about one yard broad. By the men it is compactly wound round the loins, but the women pass it two or three times round the waist and fasten it by making the free end lap over between the body and the garment, allowing the whole breadth of the cloth to hang down. To this various articles of attire are added, and on special occasions a white cotton or muslin jacket open in front and with tight sleeves is worn. The officials and people of the better class wear during the cold season a silk jacket padded with cotton wool and lined with fur, the fur being always worn next the body. Wooden sandals are generally worn, but when the roads are muddy they are taken off and carried under the arm. Both men and women wear ear-rings (*nadouns*), which are usually hollow bell-mouthed pieces of amber, ivory, glass, silver, gold, or some other material, about an inch and a half long. The rank of women is distinguished by the fillets and ornaments by which the hair is bound in a bunch on the top of the head. When a woman wishes to be particularly fine she stains her nails and the palms of her hands of a red colour; she strews on her bosom the powder of sandal-wood; with the same powder she sometimes rubs her face; and she tinges her teeth and the edges of her eyelids with black. The last custom is sometimes adopted by the men. Both sexes wear the hair long; the men tying it in a knot on the crown of the head, the women on the back. Every man, woman, and child carries an umbrella. Tattooing, chiefly on the legs, prevails among the male part of the population; and the chewing of betel and smoking of tobacco are universal.

The religion of the country is that of Buddha, which is, however, professed

here with less purity than in Ceylon. Worship of *nats* as good or evil spirits is here prevalent, as it is throughout the Eastern Peninsula. (See CEYLON, Religion.) Dreams and omens are also believed in, and various modes of enchantment practised, although all this is directly contrary to the teaching of Gautama. Amulets and charms of amber are very popular, and when a piece of amber is found with a fly in it, it is highly prized, as it is believed to protect the wearer against sickness, robbery, scandal, loss by fire, and all other calamities. On the other hand, the vows of purity and chastity taken by the monks are said to be less frequently broken here than in many other Buddhist countries, and charity, which is so prominent a virtue in Buddhist morality, is said to be largely practised, even to an extent that is looked upon by western nations as a fault.

The Burmese possess a complete system of education, so far at least as the boys of the better classes are concerned. These are required to reside in a religious house for three years, and there they act as servants to the priests, who instruct them in reading, writing, and the elements of arithmetic, as well as the doctrines of their religion. Time is reckoned among the Burmese by lunar years, and every thirteen years five leap years, each lengthened by one month, are introduced in order to keep the year in correspondence with the seasons.

Next after the Burmese proper the most important section of the population of the Kingdom of Burma consists of the Shan tribes, who inhabit the mountainous regions east of about lon. 97° E., and north of about lat. 24° N. They are the same race as is found under the name of Laos in the empire of Siam, and the same also as is met with in parts of the southern provinces of China. They live under their own chiefs, who pay a trifling tribute to the King of Burma merely as an acknowledgment of suzerainty, and in some cases they send such tribute both to Mandalay and Peking. Among the principal tribes are the Nagas, Khamtis, and Singfus, the last, also called Kakhyen, being spread over a considerable district to the south of Assam. What stamps them as one race is their language, which is the same among all the tribes, and is allied to the Burmese, but much more closely akin to that of Siam. In religion they are for the most part professed Buddhists, but some of the tribes worship only good and evil spirits. They are nevertheless far from being a barbarous race. The women are described as fine-looking, skilful, industrious, and well dressed. Their mountains produce abundance of excellent teak, and horses and gum-lac are also among the articles which they bring periodically to Moulmein for sale.

GOVERNMENT AND DEFENCE.—The form of government is an absolute monarchy, the king having unlimited power over life and property. The king is styled "his gold-footed majesty," and even European ambassadors are required, by the code of Burmese etiquette, to take off their shoes before being introduced into his presence. The royal symbol is the peacock. The authority of the king is very oppressive in the neighbourhood of the capital, but is less and less felt the further one goes from that centre. The revenue is derived from customs duties both on imports and exports, and the monopoly of the trade in cotton, timber, lead, petroleum, rubies, and other commodities. The standing army is

small. Levies are made in case of war by way of conscription; and a specified number of houses is required to furnish a soldier completely equipped, or pay a considerable fine. All men from their seventeenth to their sixtieth year are liable for service.

CHIEF TOWNS AND ARCHITECTURAL REMAINS.—The seat of government, after oscillating between Ava and Amarapoora, is now fixed in Mandalay, a new town, founded in 1857, and situated in a dusty plain, 2 or 3 miles from the banks of the Iráwadi, and about seven miles north of Amarapoora. It is built in the form of a number of squares inclosing one another. In the innermost of these squares lives the king with the officials of the palace; in the next the other officers of state and the soldiers, occupying isolated houses; and in the outermost the rest of the population, whose dwellings are small huts made of bamboo rods covered with matting and resting on stakes buried in the mud. The shops of the Chinese, Mussulmans, and Armenians, in whose hands is the whole of the trade, are as a rule much more substantial in their character, and contrast very favourably in their external appearance with the houses of the native Burmese. Temples, pagodas, and monasteries are to be seen on all sides. Brick walls surround each of the two inner squares, and another wall skirted by a moat encompasses the whole town. The population of Mandalay is estimated at 100,000, one-tenth of the number being priests. Both Ava and Amarapoora, lower down on the Iráwadi, are now completely deserted, but still preserve numerous white-roofed or gilded temples and pagodas to remind one of their former glory. A considerable distance still lower down on the same river are to be seen the ruins of a still older capital of Burma, Pagan. It held the dignity of being the Burmese capital from its foundation in the ninth century to its destruction by the Tatar army of Kubla Khan towards the end of the thirteenth. Its ruins extend through a length of about 8 miles with a breadth of about 2, and it is estimated that the remains of nearly a thousand temples are contained in it. Some of these are magnificent structures and are kept in a state of repair, but the majority are in ruins. The temple of Ananda, one of these still in a state of preservation, is built in seven stories, all except the uppermost in the form of a square. The total height is 183 feet, and the length and breadth of the foundation story nearly 200 feet, to which must be added the breadth of a projecting portico (about 40 feet) in the middle of each side.

THE KARENS.

The Karens are a tribe found in the mountain forest regions of the south of the Burman kingdom and the east of British Burma, and also in an independent tract lying on the left bank of the Salwen between the Burman kingdom and the British division of Pegu. The south-western portion of the independent territory is mountainous, having heights rising to about 8000 feet, but the north-eastern tract is more level and has fertile valleys in which the Karens have settled down to agriculture. They are on the whole a very barbarous people, but they are credited with a conspicuous talent for music. Physically

they are of a robust frame. The estimates of their numbers vary, but they do not appear to exceed half a million. The area of the territory recognized in the Treaty of Mandalay of June 21, 1875, as independent both of Burma and British India is about 4000 square miles.

SIAM.

Siam (called by the natives *T'hai*, and by the Burmese, *Yudra*) is an extensive kingdom in the Eastern Peninsula, lying to the south-east of Burma, between British Burma on the west and Anam on the east. Its total area is about 280,560 square miles, which includes about 208,350 square miles belonging to Siam proper and Laos, 23,400 square miles belonging to the south-eastern provinces of Siemrab and Battambong formerly included in Cambodia, and about 48,900 square miles belonging to tributary states in the Malay Peninsula extending down to about 5° N. lat. The entire population is estimated at about 5,750,000, or about 20 to the square mile; and of this total 4,650,000 is assigned to Siam proper and Laos, 500,000 to the Cambodian provinces, and 600,000 to the Malay states.

PHYSICAL FEATURES.—The surface of the country is mountainous in the north, but to the south consists of broad plains with wide stretches of well-wooded hill country, in some places rising in terraces from the lowlands traversed by its rivers. Off the coasts at a distance of 10 or 15 miles are numerous islands, mostly rocky, and considerably elevated. There are, besides numerous small rivers, two great navigable streams—the Menam or Meinam, and the Mekong or Cambodia. Of these the Menam is the most important, as intersecting the greater part of Siam proper, and almost monopolizing its trade and navigation. All the Siamese rivers are flooded between June and September, and to this circumstance is mainly due the fertility of their basins. The soil of the whole valley of the Menam is of great fertility, consisting of thick beds of alluvium from the yearly inundations of that river. The more mountainous parts are of sand and limestone, arid, uncultivated, or covered with forests. The Cambodian provinces were, as long as the kingdom of Cambodia remained intact, the most fertile tracts of that state, and, according to Dr. Bastian, the only parts of that state capable of an extensive cultivation. The climate of so extensive a country varies of course with the latitude and the elevation of its surface. Here, as in neighbouring countries, the temperature and rainfall are governed by the monsoons, the north-east monsoon prevailing from December to March, the south-west from about May to October. The former is dry and cool, and reduces the temperature to between 44° and 55° Fahr.; the latter wet and warm, and raises the temperature to between 70° and 97°. On the whole the country is healthy, though in the wet season ague and cholera are prevalent. In marshy districts also cholera and small-pox are endemic.

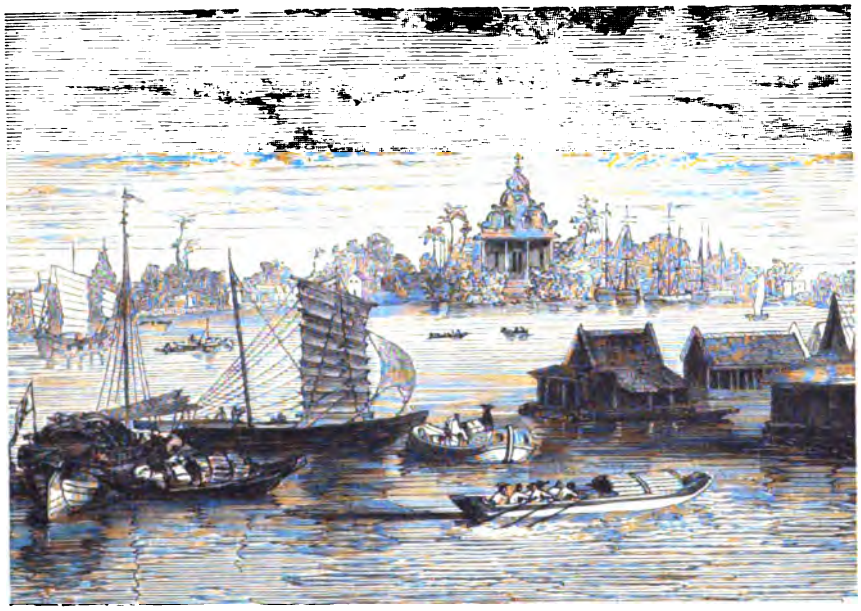
VEGETATION.—Rice is by far the most important object of cultivation, and

thrives admirably over the whole of the region, about 12,000 square miles in extent, inundated by the Menam. There are two rice harvests, the more important in November and the less important in July. Of the tropical farinaceous roots the Siamese raise the usual varieties, and among others the sweet-potato. Coco and areca palms are numerous, especially the former, in the lower districts; and the oil is extensively exported. No part of the East is more celebrated for the abundance and quality of its fruits. The mango, mangosteen, litchi, durian, pomegranate, guava, pine-apple, and, in short, all the fruits of South-eastern Asia, the Indian Islands, and tropical America, are abundant, and of exquisite quality. Of these fruits those most commonly found in Siamese gardens are the durian and the mangosteen, and the Siamese think that the two must be eaten together in order that the cooling properties of the latter may correct the heating properties of the former. The cultivation of the sugar-cane is carried on on an extensive scale, and sugar is also obtained from the coco-palm. Black pepper of good quality, tobacco, and cotton of several sorts are largely produced. Cardamoms are plentifully obtained in royal preserves strictly guarded. Gamboge is yielded by a species of *Garcinia* in the forests on the east coast of the Gulf of Siam, and in the Siamese portion of Cambodia (whence its name). In the same districts also are procured large quantities of scented agila, eagle, or aloes-wood, which is found still more abundantly in Anam (which see). Sappan-wood is procured extensively from the forests between lat. 10° and 13°. Excellent teak-timber abounds in the forests of Upper Siam, and is much used in the construction of junks and temples. The cultivation of the Cambodian provinces especially is very far behind what it is capable of attaining, and what it must have been when the Cambodian kingdom was at the height of its power, possessing, as its architectural remains show, a civilization of a very high degree of development. (See below.)

ZOOLOGY.—Among carnivorous animals are the tiger and leopard, the bear, otter, the musk-civet, the cat and the dog, both wild and domestic. Porcupines, squirrels, rats, and mice are common. The pangolin or scaly ant-eater is found in the forests; and its scaly skin is sold to the Chinese, who esteem it for its medicinal qualities. The orang-outang and other species of apes are pretty abundant. Among the ruminating quadrupeds are found seven species of deer, the sheep, goat, ox, and buffalo. The horses are of small size (under 13 hands), and are not much reared by the natives, those in use being principally procured from Yünnan in China. The hog exists abundantly in the forests, and is domesticated by the Chinese residents. The single-horned rhinoceros is met with in unusual numbers, and is hunted for its hide and horn, both of which are exported to China. The principal boast of the Siamese, however, is in the high perfection of their elephants, which here attain a size and beauty elsewhere unknown, and are held in high esteem throughout India. A very great additional value is set on white elephants, which, when captured, become the property of the king, and are kept at Bangkok in as great state as they are at Mandalay. They are watched and tended with the utmost care, and are adorned with golden ornaments wherever they can be attached. Among the birds the water-birds

and waders are by far the most numerous; geese, ducks, boobies, cormorants, king-fishers, storks, and pelicans are frequent; the forests abound with peacocks, pheasants, and pigeons; and in the islands are large flocks of the swallows that produce the famed edible birds'-nests. Crocodiles, geckoes, and other kinds of lizards, tortoises, and green-turtles are numerous, the last of which, as well as their eggs, are in great request among the Siamese as an article of food, and from their sale add not inconsiderably to the royal revenue. The python serpent attains an immense size, and there are many species of snakes. The only insect in Siam worthy of notice is the *Coccus lacca*, which produces the valuable dye and gum, the *lac* of commerce.

MINERALS.—Gold is extensively diffused, and is obtained in tolerable purity.



General View of Bangkok.

Tin, iron, copper, and lead are abundant, and are wrought, especially the two former, to some extent by the Chinese. The sapphire, oriental ruby, and oriental topaz are found in the hills of Chantibun, on the east side of the gulf. The mineral wealth of the kingdom is, however, far from having been completely explored, and a geologist was appointed for this purpose in 1872.

TRADE AND SHIPPING, &c.—Siam has a most extensive trade, both inland and coastwise, as well as foreign. The inland trade is carried on mainly by the rivers, for there are no roads, and wheel-carriages are all but unknown. Every province of the kingdom produces some article in foreign demand; and Bangkok, from its situation on the Menam, has become the great centre of all its commerce. The principal articles of export in the order of their importance are

rice, sugar, pepper, sesamum, sappan-wood, hides, and cardamoms, and among other articles are teak and other kinds of timber, coco-palm oil, cotton, peas, gamboge, birds'-nests, ivory, &c., as well as tin and zinc from the Malay provinces. The foreign trade is conducted chiefly with China, the southern ports of Anam, Java, Singapore, Pulo-Penang, &c., and occasionally with British India, the United States, and Britain. In 1855 a commercial treaty was concluded with Siam by Great Britain, and since then there has been a great advance of trade. The shipping returns show that more than one-half of the trade reckoned by value is carried on in British vessels. Next to British vessels the largest tonnage is that of the Siamese vessels, some of which are built after European models, while others are junks. The chief money of Siam is the *tical* or *bat*, a silver coin, the value of which is about 2*s.* 6*d.*; the Mexican dollar, value 4*s.* 2*d.*, is also common. Bronze money has recently been introduced from Britain. The chief weights are the *catty* = 1⅓ lb., and the *picul* = 133 lbs.

INHABITANTS, RELIGION, &c.—The inhabitants of Siam are estimated to be composed in the proportion of one-third of Siamese proper, about one-third Laos, about one-sixth Chinese, and the remaining sixth Malays, Cambodians, and some smaller tribes in the hills. The Siamese proper belong to the same family as the Burmese, whom they resemble in their general appearance. Their dress also is similar to that of the Burmese, and the principal difference in external appearance between a native of Burma and a native of Siam is due to the fact that while the former wears the hair long, the latter after the years of puberty has it cut short. The cutting of the hair is always an important ceremony, and after this ceremony the men retain only a bunch of short erect hair on the top of the skull, which is constantly shaven all round, while the women have their hair cut in such a manner that the length of the hair diminishes from the crown of the head downwards. They also wear side-locks which hang down behind the ear. They universally stain the teeth with an indelible black dye; and the better classes often permit the finger-nails to grow to an enormous length. The principal food of the people is rice, generally eaten along with onion and pepper sauce or curry. Fish, vegetables, and fruits are also largely consumed. The use of intoxicating liquors is forbidden by their religion, and though this prohibition is not strictly attended to, the Siamese are not much addicted to this kind of excess. On the other hand, the practice of chewing the betel-nut, which, as in Burma, is universal, is sometimes carried to such an extent as to produce a species of intoxication, and a worse kind of intoxication is sometimes due to eating a kind of fruit called the *lamphong*, the use of which is on that account forbidden by royal decree. In consequence of their addiction to the practice of betel-nut chewing, the mouths of the Siamese are nearly always stained of a dark-red colour, and it is to conceal the discoloration of the teeth that ensues from it that the custom of staining them black is followed. The Siamese are described as lively, timid, inconstant, servile, and indolent, but humane and charitable; a prominent feature in their character is their excessive national vanity, which exceeds even that of the Chinese.

The houses are for the most part lightly constructed, like those of most other

parts of the Eastern Peninsula, of bamboo stakes covered with matting (generally of palm-leaves), but many in the capital are built of teak, and a few of brick and mortar. On their religious edifices, however, the Siamese bestow abundant labour and expense; these are constructed of solid masonry, and covered with tiles, having all the wood-work laboriously carved and gilded, and filled with carved and richly-gilt images of Buddha. Plaster decorations are also largely used, and these are often further ornamented with mosaics in mirror and coloured glass.

All classes of the population except the nobles and the officers of state with their families are distinguished by a tattoo mark on the wrist. Umbrellas are universally carried by the higher classes, and they indicate by certain distinctions the rank of the bearer. Those having several shades rising above one another on the same stalk are symbols of royal dignity. About one-third of the entire population are estimated to be slaves. These slaves are either debtors who being unable to pay their debts have been handed over to their creditors, captives in war, or persons bound to perform certain services for the public benefit, and for this purpose standing at the disposal of the king. Those belonging to the first class obtain their freedom as soon as they can pay their debts, and those of the second class as soon as they can pay the sum at which their value is estimated.

The Siamese language is one of the monosyllabic languages, and resembles Chinese in the importance given to tone, the same word having often several very different meanings according to the tone in which it is pronounced. The literature is meagre and uninteresting. They have some excellent fables, with very good dramas (mostly borrowed from the Chinese), and other poems. Rhymes are very abundant in Siamese, and their poems are full of rhyming jingles and alliteration. The printing-press has been introduced in recent years, and many of the best Siamese works can now be had in a printed form. Education is carried to a very limited extent. The majority of the men are said to have some knowledge of reading and writing, but few can do more than read and write awkwardly, and perhaps cast accounts.

The religion is, as elsewhere in the Eastern Peninsula, Buddhism, but there are perhaps even more superstitions connected with its observance, or existing in spite of it, here than in Burma. Tutelary deities are worshipped, and have sanctuaries erected to them of wicker-work with figures of clay inside, in order to serve as a protection to the dwellings of those on whose property they are placed. Similar sanctuaries or demon-temples are erected here and there in the towns for the public benefit, either at the expense of the king or that of officials or private citizens. Dreams, omens, and enchantments are held to be of great account, and amulets are very commonly worn. A highly esteemed form of amulet consists of a little plate of gold with a text inscribed upon it by a priest in the Pálí dialect, the sacred language of the Buddhists. Several remarkable festivals, religious and other, are celebrated by the Siamese in the course ot the year. The most impressive of these are held at the time of full-moon in the eleventh and twelfth months. At each of these festivals large numbers of baskets made of leaves are set on fire and floated down the river, and at the

same time fireworks representing flowers and shrubs are set off by the king. Different accounts are given of the meaning of these observances. According to one they are performed to obtain pardon from the divinities of earth and water for the defilements that man has wrought in both in the course of the year. According to another the floating burning baskets are intended to convey offerings to the footprint of Buddha which is impressed on a steep sandhill on a distant shore of the great ocean, while the fireworks are intended to commemorate the descent of Buddha from heaven to earth. Perfect freedom is allowed to Christian missionaries. Roman Catholic missions have existed in Bangkok since the seventeenth century, and have formed several congregations chiefly among Portuguese settlers, immigrants from India, and people of mixed race. Protestant missionaries confine themselves almost entirely to the education of the young, and have made few converts. In general Buddhists regard with complete indifference the efforts of the preachers of rival religions to spread their faith, resting with the most sovereign confidence in the unassailableness of their own.

The Laos, who inhabit north and east Siam, are, as elsewhere stated, members of the Shan tribes, and speak a language which is only dialectically different from that of the Siamese. They are said to be distinguished by politeness, as well as by honesty in their dealings not only with each other but with other tribes with which they come in contact. Their women are exempted from arduous and degrading kinds of labour, and are lighter in colour than those of Siam. The people seem to have great skill in the domestication of elephants, which are to be seen everywhere in large herds grazing along with cattle and performing all kinds of work. There is no means of estimating the number of the Laos, but the population is very sparse.

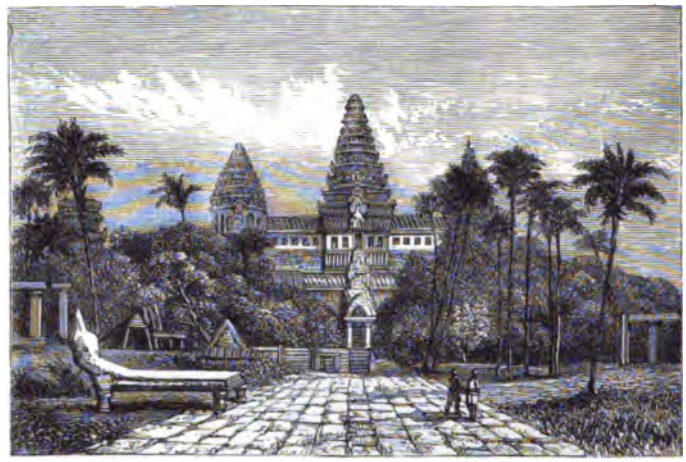
GOVERNMENT, DEFENCE, &c.—The government of Siam is a thorough despotism, subject to no restraint, except the apprehension of popular tumult or foreign invasion. Nominally there are always two kings reigning at one time, but in reality the one called the *first king* wields all the authority in the state, while the *second king*, though he enjoys royal honours, takes a share in the administration only when the first invites him to do so. The dignity of king is elective, but only those can be elected for this honour who are of royal blood both by the father's and the mother's side. The electors are the nobles. The revenue is derived from taxes on the products of the land, customs duties, monopolies (opium and gaming houses), tribute from the Cambodian provinces, &c. The tribute paid by the Cambodians consists principally of rice, cardamoms, and bees'-wax. Of the first a definite proportion of the annual produce is paid as tribute, the amount of the produce being regularly estimated after the harvest; of the other two articles a fixed quantity has to be paid every year by the bulk of the Cambodian provinces; but the inhabitants of the mountains round the Lake of Tali Seb, who are not liable for forced labour, as most of the subjects of Siam are, have to send to Bangkok four pounds of bees'-wax per man. The standing army consists only of a small body of troops recruited from the guilds of workmen belonging to the ministry of war and the military officials. All carpenters are, however, enrolled as soldiers. In time of war every Siamese

is liable for service, and during the period for which those who are called up are required they receive only food and clothing. For centuries the Siamese government paid tribute to China, but since 1852 this tribute has been refused. In 1855 the first commercial treaty with a European power (Great Britain) was concluded; since that date several others have been entered into, and the Siamese government has in recent years been showing an increasing desire to extend its intercourse with nations outside the bounds of Asia.

CHIEF TOWNS AND REMAINS OF ANTIQUITY.—Bangkok ("the town of wild olives"), the capital of Siam, stands on the Menam, about 20 miles from its mouth, and has a population of about 500,000, nearly half of whom are Chinese and more than a tenth priests. What gives the town its peculiar stamp is the immense number of its pagodas, with their variegated roofs covered with polished or glazed tiles, and their gilded pinnacles. With the pagodas are always connected the monasteries, and to these there belong also gardens, courts, tanks, and chapels, which combine to form a *vihan* or conventual establishment. The largest of these establishments is that of Vat Pho, which occupies both sides of a broad street near the palace. One half of it consists of the residences of many hundreds of monks, and is divided into numbered streets. All religious as well as all royal edifices are built of stone on mounds of from 10 to 12 feet in height, intended to raise the buildings themselves beyond the reach of inundations. As in Canton and other places in China, a large number of the inhabitants reside permanently on the river in boats or floating-houses. About 10 miles to the north of Bangkok is Phrabat, a celebrated resort of Buddhist pilgrims. The chief object of pilgrimage is to see "the footprint of Buddha," above which one of the numerous temples of the locality has been built. This temple or tower is entirely gilt on the outside, and in the interior has a floor paved with silver, and in the background a silver statue of Buddha 6 feet high under a golden canopy adorned with precious stones. The footprint itself is in the middle of the structure behind a silver lattice, and is completely covered with gems and gold rings. About 45 miles above Bangkok, on the same river, stands Ayuthia, also called Krung-Khao, the old capital of Siam. The old town

Ruins of Ayuthia.

was destroyed by the Burmese in 1766, and is now represented only by ruins of temples and palaces. It stood on higher ground than the new town, from which its remains are separated by a dense wood. The new town may be said to stand in the river itself, and like Venice is intersected by numerous canals. In population it is little inferior to Bangkok.



Principal Entrance to the Nakhon or Ongkor Vat.

The most remarkable remains of antiquity in Siam belong to the Cambodian provinces, where there are some architectural remains of a former civilization not surpassed in interest by any others in the whole world. The most remarkable of these ruins that has yet been examined by European travellers is the temple known as Nakhon or Ongkor[1] Vat, literally "the temple of the city," being situated about 4 miles to the south of the city of Nakhon or Ongkor Thom, which was the capital of a Cambodian kingdom from the tenth to the thirteenth century. Both city and temple are situated in a plain about 50 miles wide extending between the Lake of Tali Seb and the hills on the north. The size of the temple would of itself be sufficient to mark it out as one of the most notable edifices in the world. The whole inclosure, which includes the ditch surrounding the outer court of the temple, is almost an exact square with sides of nearly a mile in length; the temple proper is a similar figure with sides of more than 600 feet in length. But the grandeur and beauty of its design, and the elaborateness, appropriateness, and delicacy of its ornamentation are no less remarkable than its size. The temple proper consists of three inclosures similar in shape, of which the inner ones are each raised from 15 to 20 feet above that next outside it, and has in elevation the appearance of a pyramid, surmounted by several towers also pyramidally arranged and culminating in a central tower 180 feet high. The three inclosures are each surrounded by a colonnade of very beautiful design, and that of the outermost is double, and skilfully constructed so as to exclude the sun but admit the light and air. The wall of this inclosure, the surface of which is for the most part sculptured in very low relief with battle-scenes from the Ramáyana and Mahábhárata, "is built of large stones without cement,

[1] Both Nakhon and Ongkor are corruptions of the Hindu Nagar or Nuggur, a city.

and so beautifully fitted that it is difficult to detect the joints between the stones" (Fergusson's *History of Indian and Eastern Architecture*). The whole edifice stands in the middle of a park or garden about 1100 yards in length and breadth, adorned with artificial ponds, and having its boundary walls, separating it from the exterior ditch or moat, furnished, like the three inner inclosures, with colonnades. The temple was originally built, according to Fergusson, for snake-worship, but was afterwards appropriated for the services of the Buddhist religion. The building shows, not only in the subjects chosen for the sculptures already referred to, but in other ways, the influence of Indian architects, but possesses features for which no parallel can be found in India. Numerous other remains of the bygone civilization to which the Nakhon Vat belongs are to be found in other parts of the Cambodian provinces of Siam, especially in the city of Nakhon Thom itself, at Patentaphrom, the place to which the seat of government of the Cambodian kingdom was transferred from Nakhon Thom, apparently about the middle of the thirteenth century, and at Panomsok. Those of Patentaphrom exhibit a greater variety of style than those of the older capital, and at the same time a general decline in taste.

THE MALAY PENINSULA.

The Malay Peninsula is the name given to the long narrow projection that proceeds first south and then south-east from the western part of the Eastern Peninsula. The chain of mountains by which this peninsula is traversed longitudinally becomes gradually lower towards the south. At no point do its peaks attain any great elevation, never reaching 4000 feet. The highest summit is Ophir or Gunong Ledang, an isolated mountain rising to the height of about 3840 feet. What is not mountainous is mostly hill-country, but on the coasts there are a few considerable level tracts. The prevailing rocks are granite and clay-slate; porphyry, hornblende, and quartz are found towards the south, and laterite occurs on the west coast. The climate is mild, and on the whole more healthy than is usual in the tropics. The slopes of the hills and mountains are covered with dense woods of tropical trees, among which wander herds of wild elephants, two species of rhinoceros, wild buffaloes, tapirs, tigers, leopards, and other feline animals. The valleys of the numerous rivers, which are in some cases navigable far into the interior, are covered with a luxuriant vegetation. The principal cultivated products are rice, maize, tobacco, sugar-cane, cotton, coffee, indigo, and pepper. The minerals of the peninsula are important, and above all, tin, which is found in great quantity at intervals between about 3° and 8° N. lat. A strip of about 50 miles in length and 6 in breadth extending along the base of the Laroot range on the left bank of the Perak, from about 4° 20′ N., is particularly rich in this mineral, the supply of which is reported to be inexhaustible. Hitherto only a small portion of this district has been actually worked. The miners are mostly Chinese. Gold and iron are also found, the former chiefly on the east coast and on Mount Ophir, which is so called from having been identified by the Portuguese with the Ophir of the Bible. Iron has

been found in several parts of Perak in the form of immense masses of solid ore. Saltpetre has also been found in large quantities in the same district.

The majority of the inhabitants are Malays, a race which has now spread over all the islands of the Asiatic Archipelago, and is believed to have had its original home in the south-east of Asia. Those now found on the Malay Peninsula appear to have crossed over from the district of Menangkabu on Sumatra, and to have formed their first settlements on the peninsula in the twelfth or thirteenth century. As regards their physical appearance the Malays are rather under the middle height, brown in colour, with black straight hair usually worn short, well-shaped mouth and nose, except that the latter is somewhat too distended at the nostrils, and round, black, intelligent eyes. They have neither beard nor whiskers, and only a very slight moustache when there is one at all. Their language is agglutinative, that is, composed of words in which monosyllabic roots are always distinctly recognizable, although new meanings are formed by the addition of other syllables. These new forms are, however, themselves treated exactly as roots, and have not as a rule any exclusive function assigned to them. The same root or group of roots may be used as a noun, adjective, verb, or even preposition. The only parts of speech that have as yet had a distinct function assigned to them are pronouns, demonstrative particles, and in some cases prepositions. To express such an idea as, I go to the east, they have to resort to some such phrase as, My journey to the east. The Malays being to a large extent a trading people, their language serves as a kind of *lingua franca* from Ceylon to New Guinea.

In religion the Malays of the Malay Peninsula are Mohammedans, but they are not fanatical. Their character is not usually represented in a very favourable light, and it is generally admitted that when roused they are apt to exhibit a high degree of ferocity. This disposition is frequently manifested in warfare, and the practice of running amuck (*mang a mok*), or running riot with naked weapons, attacking every one they meet, a practice to which they are apt to resort when grossly insulted or outraged, is another indication of their violence of temper. On the coast they have long been addicted to piracy, but this is attributable to the fact that misgovernment has rendered piracy the easiest if not the only mode of gaining a living; for in the interior, where they settle down to peaceful pursuits, they do not as a rule display any savageness of disposition. All accounts agree in representing them as incapable of enduring prolonged mental or physical labour, and in general as idle and improvident. It is in consequence of this that the peninsula has been invaded by large numbers of Chinese, who are steadily gaining ground by their industry. The whole population of the peninsula is estimated at 900,000, and of these nearly a fourth are believed to be Chinese. In the most secluded parts of the interior there still dwell about 10,000 survivors of a race of black savages, known to the Malays as Oran Utan (men of the woods), Oran Bukit (men of the mountains), or Oran Binue (men of the interior). They are declared by the Russian traveller Miklucho Maklay, who visited them in 1875, to belong to the Papuan family.

Politically the Malay Peninsula, with the exception of the British portions, is

divided among a number of more or less independent chiefs. Those in the north are tributary to Siam, but the tribute is little more than a trifling acknowledgment of suzerainty; but all are to a certain extent under the influence of Britain. The principal states on the west coast are Queda, Perak, and Salangore, to the south of which lies a confederacy of smaller states known as the Nigri Simbilan; on the east coast, Pahang, Kirmaman, Tunganu, Kelántan, Patani and Singora. In all the states the great majority of the people are slaves, their masters forming the nobility and having the right to sell their services to whoever will pay for them.

CAMBODIA.

Cambodia, or more properly Camboja, is a kingdom under the protectorate of France lying between Siam and French Cochin-China. Its area is 32,380 square miles, estimated population 890,000, or about 27 to the square mile.

PHYSICAL FEATURES.—The eastern part of Cambodia is for the most part low and level, the western part mountainous. The latter region especially is far from being well known, so that it is impossible to give an account of the manner in which the mountains are disposed. They do not, however, seem to form regular chains, but to be agglomerated in confused groups. On the east isolated granitic or quartzose hills form almost the only elevations. The most important feature of Cambodia is its river, the Mekong, which partly separates it from Anam and partly traverses the country. It touches the confines of the country a short distance below a magnificent series of falls and rapids, and after flowing almost in a direct line due south, traverses the south-east of Cambodia in a general south-westerly direction, until at Panompeng it divides into two branches and turns to the south-east. The importance of this stream consists chiefly in the fact that it annually inundates all the lower parts of Cambodia, that is to say, the greater part of the entire surface. The waters rise from June to September, and in the latter month the whole of the east and south resembles a vast sea studded with islands. The inundation waters do not all proceed directly from the Mekong itself, but are conveyed to the interior by natural channels or canals, many of which are dry for half the year, while the others convey water to the Mekong at one period, and at another convey water from that river until being filled to overflowing they spread their waters over the neighbouring country. The most important of these alternating streams is the Udong River, which communicates at its upper extremity with the great Lake of Tali Seb on the borders of the kingdom of Cambodia and the Cambodian provinces of Siam. The length of this lake in flood is said to be upwards of a hundred miles; its breadth varies from thirty to sixty miles; but during the dry season (from February to June) the lake is greatly reduced in superficial extent and still more in depth. In this season of the year it has a depth of only 4 feet, while in flood the depth is increased from 30 to 40 feet. The stream that alternately drains and feeds this lake has a length of about

75 miles, a breadth of about half a mile, and a depth varying with the seasons from about 25 to 65 feet. The Lake of Tali Seb is only the largest example of numerous lakes of the kind scattered over the whole of the low country. Most of these indeed are embraced by the general inundation, and appear as distinct lakes only when the waters have subsided, and many of them dry up altogether. Others become mere marshes, of which there are several of considerable extent in the lower parts of the country.

CLIMATE AND PRODUCTIONS.—The climate on the whole is mild and pleasant except during the height of the rains, from June to September, when it is extremely sultry. Like other countries similarly situated Cambodia has a wet and a dry season, but these seasons are not exactly coincident with the rise and fall of the waters of which an account was given in the last paragraph. The rainy season lasts from June to November inclusive, the dry from December to May. In respect of salubrity the climate, like that of other countries having a similar alternation of seasons, is not favourable to Europeans. A prolonged residence renders natives of European countries subject to fevers and anæmia. Typhoons occur, but not so commonly as in Anam.

The whole of the area of Cambodia subject to inundation is covered with a rich alluvial soil, but almost the only parts now cultivated are the banks of the rivers, which, even with very imperfect cultivation, yield abundant supplies for the scanty population, and even afford a surplus for export. The products are rice, cotton, indigo, tobacco, silk, anise-seed, melons, betel-nuts, cardamoms, &c. The areca-palm, from which the betel-nut is obtained, is cultivated without much trouble in large gardens. For rice Cambodia is looked upon as the granary of Anam. The mountains of the north-west, which are all well-wooded, furnish an inexhaustible profusion of commercial products, but these are almost wholly neglected by the indolent and backward inhabitants. On almost all the mountains vanilla grows wild in abundance. Excellent cardamoms, various species of india-rubber trees, and the gutta-percha tree are also plentiful. Stick-lac is already one of the most valuable products of the land. Teak-wood and other kinds of timber are also obtainable in great quantity, and the dye-woods are numerous and varied, and are used by the inhabitants with great skill.

But far more important than any of the vegetable products of the land are the products of the fisheries of Lake Tali Seb. The fishing season takes place on the subsidence of the waters, the catching of the fish being then rendered much more easy by the fact that they are then crowded together in a more contracted space. The fish are salted and dried, and not only form an important part of the food of the inhabitants, but constitute one of the principal exports of the country. The mineral wealth of the country is also considerable, but is almost completely neglected. Iron abounds, and is said to be of superior quality. Gold, argentiferous lead, and copper are also found.

ZOOLOGY.—Both the great pachyderms of the torrid zone, the elephant and the rhinoceros, are found in the forests of Cambodia. The elephant is not so useful an animal as it is in some other parts of the Eastern Peninsula,

but chiefly serves to add to the dignity of men of rank and wealth. The buffalo is the true beast of burden in the country, and is used also in agriculture. The native horse is small, and neither it nor the native ox is found in great numbers. The tiger and the leopard are rare, but all the more abundant are deer and small game. The crocodile infests the rivers in certain parts, and numerous aquatic birds are to be seen on the river banks. Snakes and other reptiles are abundant, but the most intolerable pests of the country are the mosquito and the leech. The latter seems to spring up out of the soil with the first appearance of rain.

MANUFACTURES AND TRADE.—The manufactures of the country are, as might be expected from the backward condition of the population generally, extremely unimportant, and would scarcely require to be mentioned were it not for the fact that there is one branch in which the Cambodians have earned a reputation among their neighbours. This branch is the making of *langutis*, the long narrow pieces of cloth, which are wound round the loins and form the principal article of dress throughout the greater part of the Eastern Peninsula. Those made by the Cambodians are much sought after on account of the beauty of their tints and the elegance of their design. The trade is chiefly in the hands of the Chinese, and its whole amount is very trifling. The principal exports are fish, rice, indigo, cotton, raw silk, resins, lac, pepper, cardamoms, and ivory. The ivory is the property of the king. The only port is Campot.

PEOPLE, LANGUAGE, RELIGION, GOVERNMENT, &c.—The Cambodians proper, who call themselves *Khmer*, and are called by the Siamese *Kammen*, are a people akin to the other chief races of the Eastern Peninsula, but are said to have less strongly marked Mongolian features. They are tall and well made, but of an easy and indolent disposition, inclined to leave all the more arduous kinds of labour to more enterprising races, such as the Chinese. They are fond of music and poetry, and accompany their songs, which are frequently improvisations, with instruments playing simple and pleasing, though rather monotonous melodies. Their religion is Buddhism, and, as in other Buddhist countries, pagodas are numerous. A considerable number of the people are slaves, and of these many are, as in Siam, debtors unable to pay their debts, and consequently bound as slaves to their creditors till they can pay their ransom. Another class of slaves are hereditary slaves, the descendants of criminals and rebels, who are in the service of the king and the pagodas; and a third class consists of members of wild hill tribes, captured by Laos slave-hunters, and sold in the Cambodian markets. The language of the Cambodians is not strictly monosyllabic, but contains words of two and even three but seldom more syllables, and it is not spoken, like the Siamese, with distinctions of tone to mark differences of sense. The government, as in the other principal states of the Eastern Peninsula, is an absolute monarchy. The king is regarded as proprietor of all the soil, and the impost levied on the land where it is cultivated is regarded as the rent. The remainder of the revenue is derived from duties on imports and exports, and the farming of gaming establishments and the opium traffic, both of which are in the hands of the Chinese. All the male inhabitants of the country are liable for military service as well as for any other duties that may be required of them by the king.

The Chinese make up about one-ninth of the population, and another considerable though much smaller section is composed of Malays and Shams. The latter are a tribe akin to the Malays, Sunnite Mohammedans in religion, inhabiting the districts contiguous to the great Lake of Tali Seb. There is also a certain proportion of Anamites, together with a few isolated hill tribes, the most important of which is that of the Kouïs, who inhabit the north-east, and support themselves chiefly by fishing and smelting a little iron.

The present capital of Cambodia is Panompeng (Pnôm-Penh), situated at the point where the Mekong, after receiving the Udong, divides into two branches. Its population is said to exceed 30,000. The town of Udong, on the Udong River, was formerly the capital.

At one time Cambodia formed a powerful kingdom with a very advanced civilization, evidences of which have come down to us in some very remarkable architectural remains. These, however, are chiefly in the provinces now attached to Siam, and have already been noticed in the section devoted to that country. A large portion of Cambodia in the north-west was annexed by Siam before the close of the seventeenth century, and further annexations (including the provinces containing the remains just referred to) were made early in the present century. At last Cambodia seemed about to be swallowed up altogether, when the French intervened, and by a treaty concluded in 1864 virtually took the country under its own protection, although Siam also was recognized in the treaty as one of the protecting powers.

FRENCH COCHIN-CHINA.

French Cochin-China is a French settlement in the Eastern Peninsula, comprising the whole of Lower Cochin-China, formerly belonging to the Kingdom of Anam. It lies to the south of Cambodia and Anam, on the Chinese Sea and the Gulf of Siam, and has an area of 22,956 square miles and a population of 1,592,000, or rather less than 70 to the square mile.

The northern and eastern parts of French Cochin-China are hilly, but the rest of the territory consists almost entirely of low alluvial land, completely intersected by the mouths of the Mekong and the Saigon, and the numerous channels still known by the Spanish name of *arroyos*, which connect these mouths at different points with each other and the sea. The lowlands, where the waters stagnate, are covered with a rank vegetation from 3 to 10 feet high; contiguous to the flowing streams are extensive rice-grounds. Where the soil is somewhat raised above the water-level it is very fertile, and in some places ranges of low hills follow the line of the rivers. In the more elevated districts are grown tobacco, sugar-cane, maize, indigo, and betel. Among the other products are tea, gums, cocoa-nut oil, silk, spices, and various farinaceous and aromatic articles. The people raise also great numbers of buffaloes, cattle, hogs, and birds; the first being employed in agriculture, and, as well as oxen, for draught

purposes. The forests in the north are estimated to cover an area of at least 3000 square miles, and abound in a variety of excellent timber. The climate is hotter, more humid, and more unfavourable to the health of Europeans than that of Cambodia. Its insalubrity, indeed, is so great that it has been found necessary to reduce the term of residence of French soldiers, sailors, and officials sent out to this settlement. A prolonged stay is almost certain to induce the condition known as tropical anæmia, to which many succumb, while many others return home with their strength exhausted. The alternation of the seasons is the same as in Cambodia, but is accompanied by different phenomena. The periodical inundations caused by the rise of the Mekong do not extend, except in a limited measure, to this territory, where the chief characteristic of the rainy season is almost daily storms, which are sometimes of extreme violence. Industrial arts are as yet limited among the natives. They are skilful in all kinds of basket-work, in which they use the reeds and other similar materials which abound in the low lands; silk and cotton are also wrought. But they excel in the use of wood, of which their elaborately carved temples, pagodas, and tombs are built. Coarse silks are also manufactured, and about 50,000,000 lbs. of salt are annually obtained from the salt-works of Baxuyen near the mouth of the westernmost arm of the Mekong, and Baria at the foot of the hills in the north-east. The people live in villages adjacent to the rivers, which, on account of the unsuitableness of the country for land traffic, form the chief means of communication. Most of the important towns are now, however, connected with Saigon by roads practicable for carriages. Their houses are either tiled or thatched with straw, the roofs being supported with wooden pillars; the better class are in two sections, the inner apartments and the outer verandah, the latter serving for use in the daytime. They are often well furnished, and not devoid of comfort. The kinds of money principally used are, for large sums, Mexican dollars of the value of about 4*s.* 2*d.*, and bars of silver called *nen* of the value of from £3 to £4; and for small sums the *sepeck*, a coin made of a brittle alloy the chief constituent of which is zinc, and having, like the Chinese *cash*, a square hole in the middle to allow of their being strung together. Their value is so small that ten of them are scarcely equal to ½*d.* French coins are also authorized, but are not regarded with great favour by the people.

The inhabitants are mainly Anamese, who, however, are noticeably smaller and of weaker physical frame than their kinsmen in Anam; a difference no doubt due to the fact that the marshy rice-fields in which the former live are less favourable to physical development than the mountainous regions occupied by the latter. Besides Anamese there are about 100,000 Cambodians, a considerable number of Chinese, and in addition some Malays, Shams, and members of other tribes, and a few hundred Europeans. The administration is in the hands of a governor resident at Saigon, who is assisted by a deliberative council composed of the military commandant, the head of the civil administration, and the director of the interior. The territory is organized in departments, prefectures, sub-prefectures, and cantons.

The chief town of French Cochin-China is Saigon on the right bank of the

river of the same name, about 35 miles above where it falls into the China Sea. The town was in great part destroyed on its capture by the French in 1859, but has been restored since that time, and now presents much of a European appearance. The Saigon river is navigable even at low-tide up to the town, which has an active trade with China, Siam, Singapore, Java, and other places; and large quantities of British manufactures, and of wines, spirits, and French manufactures, are imported. The chief export is rice, but cotton, silk, hides, and fish are also exported. British vessels have the largest share of the trade. Since the occupation of the territory by the French a mixed language, composed of Anamese, French, English, Javanese, Portuguese, and other elements, has come into use as a medium of intercourse between natives and foreigners. The population is about 115,000.

The provinces of French Cochin-China belonged till near the close of the seventeenth century to the kingdom of Cambodia, but at that date they were seized by Anam. In 1863 those on the left bank of the eastern arm of the Mekong were ceded by the King of Anam to France after a war which owed its origin to persecutions of French missionaries in Anam. Those on the right bank (the western provinces) were seized by the French in 1867 in order to put an end to the risings of the people of Cochin-China, which were fomented, in the opinion of the French rulers, by the inhabitants of the Lower Provinces.

ANAM.

Anam is an empire occupying the east side of the Eastern Peninsula along the China Sea, and has a length of about 850 miles, with a breadth from about 110 miles near the middle to upwards of 400 miles in the extreme north. It is composed of three distinct parts, Tonquin in the north, Cochin-China proper with Champa in the east, and the territory of the Laos tribes in the west of the portion lying south of Tonquin. The area of Tonquin is about 64,000 square miles, the estimated population 15,000,000, or about 235 to the square mile; the area of Cochin-China proper and the Laos territory about 106,000 square miles, the estimated population 6,000,000, or about 57 to the square mile.

PHYSICAL FEATURES, CLIMATE, AND PRODUCTIONS.—The whole of the coast is considerably indented, especially at the mouths of the rivers, where it affords many safe and commodious harbours; and the view which the country presents from the sea is that of a varied landscape, composed of bold headlands, picturesque valleys, well-cultivated slopes, extensive downs, and low plains, frequently terminating in sand hills, with a background of rather lofty mountains in the distance. Along the coast there are numerous groups of islands.

Tonquin is mountainous on the north, but in the east is nearly level, terminating towards the sea in an alluvial plain. It is generally fertile, yielding good crops of rice, cotton, fruits, ginger, and spices, with a great variety of varnish-trees, areca palms, &c. The principal river is the Song-ka, which flows from the interior in a south-easterly direction, and falls into the Gulf of Tonquin

by several outlets. It has numerous tributaries, and several branches are joined together by canals, both for irrigation and commerce. Its periodical overflowings fertilize the rice fields within the reach of its waters. The climate resembles that of Bengal, but participates in the oppressive heat and very disagreeable cold of China. It is peculiarly subject also to typhoons, which sweep the land with inconceivable violence. Tonquin is the only part of the empire that is rich in metals, producing large quantities of gold, silver, copper, and iron. A great deal of gold is found also in the sands of the rivers, thousands of people being employed in collecting it.

Cochin-China Proper, or Dang-Trong, lying between lat. 12° and 18° 30′ north, and averaging about 50 miles in breadth, is bounded on the west by a range of lofty mountains, hitherto unexplored by any European. The country is for 10 miles inland a complete desert, and is generally sterile, but contains many fertile spots. Its sandy soil also bears productions peculiar to this region, including eagle-wood (a corruption of the Malay name *agila* wood), which attains greater perfection here than anywhere else. This wood is much esteemed all over Asia for its pungent fragrancy, and is, on this account, in constant use in burning incense to idols. In the more favoured districts grain and leguminous plants are produced in great abundance, and among other vegetable products are sugar-cane and cinnamon, the latter of superior quality. Mention may also be made of a plant called by the natives *tsai*, from which the Anamese obtain a very solid emerald green by a process similar to that by which indigo is derived from the indigo plant.

Champa occupies the southern extremity of the empire. It is extremely sterile, consisting, in great part, of sand hills, without any vegetation; peaks, with stunted shrubs, granite formations of every description, and a reddish, disintegrated mass of stones. Its coast, however, abounds in excellent harbours, and it yields at least one valuable production—the eagle-wood, above mentioned as a product of Cochin-China proper.

GEOLOGY AND MINERALS.—The geology of Anam presents little variety, its prevailing formations being primitive, and consisting mainly of granite or syenite, with the occasional occurrence of quartz, marble, limestone, and hornblende. As elsewhere mentioned, iron, gold, and silver are found in considerable abundance in Tonquin, but in no other part of the empire. There, also, great masses of beautiful white marble with blue streaks are found. The singular mountain at Cape Varela, in Cochin-China, one of whose peaks has the appearance of a huge broken and falling column, is supposed to contain some veins of silver; and at about half its height there is a thermal spring of very high temperature. According to the reports of missionaries coal is found in the middle provinces of the empire almost on the surface. The alluvial soil of the country consists of clay, loam, or sand, which alternates or is mixed with gypsum and ferruginous matter; and the sand in many parts accumulates extensively upon the coast, and forms large lagoons and dangerous shoals.

MANUFACTURES, TRADE, &c.—The principal branches of industry practised by the natives are spinning of cotton and silk, the weaving of these into

coarse fabrics, the preparation of varnish, the manufacture of lacquered ware, the smelting of iron, the manufacture of firearms, and the construction of ships or junks. Except in Tonquin there is only one road in the empire. This road extends through the whole length of the empire from Lower Cochin-China to Kaobangtran, the former capital of Tonquin. Even this road is not kept in very good condition, and there are no bridges across the numerous streams that intersect it, and which must consequently be crossed either on boats or by fords. In Tonquin there are one or two other roads branching off from this main one.

The internal trade is conducted chiefly on the rivers of Tonquin and along the sea-coast. Goods are conveyed in junks, which are well constructed and managed, and average 40 or 50 tons burden. The trade between Huë and Tonquin, as well as a great portion of the foreign trade, is in the hands of the Chinese. The latter is chiefly with China, Siam, and the British settlements on the Straits of Malacca; the principal ports are Kesho in Tonquin, and Phuyen, Quinhon, and Huë in Cochin-China.

The coin is made in imitation of the Chinese, but of baser metal. Sepecks are here, as in French Cochin-China, the common medium of exchange for small amounts. The gold and silver pieces are mostly of an oblong form, like Chinese ink, and bear the name of the reign in which they were cast; the measures of length and capacity are nearly the same as in China.

PEOPLE, LANGUAGE, RELIGION, &c.—The majority of the inhabitants both of Tonquin and Cochin-China are Anamese. They are said to be the worst formed and the ugliest of the Mongoloid races of the Eastern Peninsula. In height they are under the middle size, and they are said to be of less robust frame than the surrounding peoples. Their colour is a dirty yellow, darker than that of the Chinese and the Laos, but lighter than that of the Cambodians. Their nose is smaller and more flattened than in any of the other races in the peninsula; their shoulders are rounded and narrow, and their waist thick. But perhaps the most noticeable of all the physical peculiarities of the Anamese, whose feet are always uncovered, is the fact that the great toe is always turned inwards to a considerable extent; to a greater extent than among other peoples who go with naked feet, and in whom there is always more or less of that divergence of the great toe. Both men and women among the Anamese wear the hair as long as it will grow. Their hair is an ornament on which they pride themselves, and they often anoint it with castor-oil or the oil of the coco-palm. Both sexes have nearly the same costume, consisting of wide trousers fastened round the waist with a silk belt, and above them a blouse or tunic reaching to the knees. The latter garment is replaced on occasions of ceremony by one of greater length and fuller make, as well as of better material. The huts of the poor are made, like those of other parts of the Eastern Peninsula, of bamboos covered with leaves of the dwarf-palm; but the houses of the richer classes have a more substantial character. They are always of only one story, and the roof comes down to within a few feet of the ground, which renders them dark even in the full light of day, but affords an agreeable coolness in periods of the

greatest heat. The duration of life among the Anamese is short. Old men are rare, and a man of fifty is already broken down by age.

In character the Anamese are said to have more points of resemblance with the French than any other eastern nation. They are sprightly and vivacious, and of dashing courage, but at the same time vain, fickle, and frivolous. On the other hand, they are accused by others of being servile, weak, cruel, hypocritical, and treacherous. One good quality seems to be conceded to them by all travellers, and that is their temperance both in meat and drink. Their chief article of food is rice, their favourite drink warm water poured over tea or aromatic leaves. Marriage is a matter of traffic, a wife being regularly paid for. The women are in many respects the mere drudges of man, performing all kinds of household and outdoor work, and acting as shopkeepers, brokers, &c., and are generally treated with rigour and neglect. Men are, in a great measure, supported by female labour; and such is the anomalous state of the marriage relation, that women are said to prefer strangers, especially Chinese, as husbands.

In general the Anamese have many things in common with the natives of southern China (the so-called Punti tribes), with whom they are closely allied by race. Their customs, their language, their religion, are in many respects similar to those which prevail in China. They are remarkable for the respect which they show to the dead, performing their obsequies with ceremonies which sometimes extend over several days, and, as in China, they wear white garments for mourning. The basis of the Anamese language, which like those of Siam and China is monosyllabic and spoken with difference of tone, is Chinese, but it contains also a host of words of different origin. It is by no means mellifluous, and is spoken with extraordinary rapidity by the natives. In writing, they use the Chinese character; with considerable difference, however, in some of their combinations. The language of the educated, which is also the language of diplomacy and administration and the courts of justice, is pure Chinese, the Chinese of the mandarins, and all the literature is of Chinese origin.

The religion of the majority of the people is Buddhism of much the same kind as is professed in China; and in Anam, as in China, the educated classes adhere to the system of Confucius, or in some cases to that of Laotse. The Buddhism of Anam is distinguished from that of other parts of the peninsula by the small number of temples and priests to be found in the country.

Besides the Anamese proper, the empire of Anam contains several other sections of the population. First of all there is a considerable number of Chinese who have immigrated in comparatively recent times, and in whose hands, as already mentioned, is the bulk of the foreign trade. In the south there are some Malay settlements, and the Champas, who appear to be allied to the Shams of Cambodia and Cochin-China. Laos tribes are found in the mountainous regions both in the west of Cochin-China and the north of Tonquin. In the former district they are called *Mois* by the Anamese and *Khas* by the people of Siam, in the latter they are called *Muongs*. They are taller and lighter in colour than the Anamese, and are described by all who have made acquaint-

ance with them as being in a very prosperous condition and living in patriarchal fashion under their own chieftains, simple in their habits and remarkable for the honesty of their dealings even with foreign tribes. They practise agriculture but do not remain attached to the same localities, and they have some manufactures of silk and gold.

GOVERNMENT AND DEFENCE. — Although nominally patriarchal, the government of Anam is actually despotic, even the nobility deriving their name and power from the sovereign. There are two classes of mandarins—civil and military—divided into ten orders, two of which compose the king's council. The commune is the basis of the administration, every commune having a large number of officials, who are all elected by the people of rank. The system of jurisprudence is that of China, but not so well or so mildly administered as in that country. Every superior, whether natural or official, has the power of inflicting corporal punishment on his inferiors; the most usual methods being with the bamboo and the *canque* or wooden collar. Fathers and mothers punish their children; husbands their wives; superior officers their inferior; and these the soldiers. Capital punishment, besides being the penalty of higher offences, is inflicted for robbery, adultery, and sometimes for malversation and corruption. In military affairs the government claims the service of every male inhabitant from eighteen to sixty years of age. As the horses are indifferent, there are no cavalry, but a number of elephants are attached to every regiment. For the protection of the coast, marine regiments are formed, to act as sailors and soldiers on board the men-of-war. These consist of rowing boats, which sail with great rapidity, and are admirably worked with 40 to 100 oars. They have also galleys that sail and row, vessels half junk and half ship, and sloops of war according to our model. The revenue is principally derived, as in China, from the land. There is also a poll-tax for each adult male subject not employed in the king's service; with sundry other contributions from the industry or consumption of the inhabitants. The land-tax is partly paid in kind, and the produce hoarded up in the granaries of the capital.

CHIEF TOWNS.—Huë or P'huthianthien, the capital of the Empire of Anam, lies near the coast of Cochin-China and is said to contain from 50,000 to 100,000 inhabitants. It has been strongly fortified by French engineers, and is provided with excellent magazines mostly situated on a navigable canal which traverses the town. The walls are 60 feet high, and the ditches 100 feet broad. Before the harbour is a bar on which there is only 12 feet of water in spring-tides, and which causes a heavy surf. Kesho or Hanoi, the capital of Tonquin, stands on the Song-ka, and is said to contain a population of about 80,000. It has broad streets adorned with gardens, and is altogether an agreeable place of residence. Its trade is considerable, and is likely to increase as the trade with Yünnan develops. In the neighbourhood are to be seen the triple wall of the old town and the ruins of the old royal palace, which had a circumference of about 6 miles, and was in its time one of the most splendid royal residences in Asia. The large palace of the last king of Tonquin is also falling to ruin, but a part of it is still inhabited by the viceroy.

HISTORICAL SKETCH.—Tonquin was at one time an extensive kingdom, nominally dependent on China, embracing the greater part of the Eastern Peninsula. Early in the fifteenth century it made itself completely independent of China. The present dynasty reigning at Huë dates only from the close of last century, and brought Tonquin under its dominion in 1802. By a treaty concluded at Saigon in 1874 between the French and the court of Huë the Empire of Anam was brought to a large extent under French influence. The principal clauses of that treaty are those opening several ports, including that of Kesho or Hanoi in Tonquin, to the commerce of Europe through the intervention of the French, guaranteeing the right of Europeans to possess immovable property in these ports under the protection of French consuls, to travel in the kingdom with passports certified by the consuls, and to convey Chinese products across Tonquin, and interdicting the King of Anam, in case of internal revolts or disturbances, from having recourse to any other foreign power than that of France. The clause allowing the conveyance of the products of China across Tonquin derives importance from the discovery by a French merchant, M. Dupuis, of the navigability of the river Song-ka, which connects Kesho, the capital of Tonquin, with the sea in one direction and with the Chinese province of Yünnan in the other.

THE CHINESE EMPIRE.

The Chinese Empire, though not the largest, is the most populous empire in the world, being, according to the best estimates that can be formed of its population, considerably more than one and a half times as populous as the British Empire and nearly five times as populous as that of Russia. It occupies the whole of Central and Eastern Asia south of the Russian dominions, and its total area is about one-sixteenth less than that of Siberia, and more than half of that of the whole British Empire. This vast empire is usually divided into China proper (including the islands of Formosa and Hainan), which forms its nucleus, and the following dependencies:—Manchooria, Mongolia, Dzoongaria, Eastern

	Area in Eng. sq. miles.	Population.	Pop. per sq. mile.
China Proper,.....	1,553,993	404,946,514	260
Dependencies:			
Manchooria,..... ..	367,000	12,000,000	32
Mongolia,.....	1,304,000	2 000,000	1·5
Dzoongaria,.....	156,225	600,000	4
Eastern Turkestan,	431,850	580,000	1·3
Tibet,.....	651,700	6,000,000	10
Corea,.....	96,757	8,500,000	87
Total Dependencies,...	3,007,532	29,680,000	1
Grand Total,.....	4,561,525	434,626,500	97

Turkestan, Tibet, and Corea. The authority which the Chinese exercise over their dependencies is by no means uniform. Part of Manchooria, for example, is administered entirely as a Chinese province, while Corea does little more than profess a nominal allegiance to the Emperor of China.

The table on the preceding page gives the area and estimated population of the different parts of the empire.

CHINA PROPER.

China Proper (called by the Chinese themselves *Chung Kwoh*, "Middle Kingdom," and by Europeans in the middle ages *Cathay*) forms the south-east portion of the Chinese Empire, and occupies about a third of its whole extent. It is bounded on the north by one of the most remarkable of human structures, the Great Wall, which proceeds directly over mountain and valley, and for a length of 1250 miles forms the barrier between China and Mongolia. Beyond the wall on the north-west it includes a large tract which stretches to Eastern Turkestan and is reckoned to the province of Kansoo. The following table gives the area and population of the different provinces according to the figures given in the sixth number of Behm and Wagner's *Bevölkerung der Erde* (Gotha, 1880):—

Provinces.	Area in Eng. sq. miles.	Population.	Pop. per sq. mile.
Pechelee,	57,283	36,879,838	644
Shantung,	53,779	29,529,877	549
Shanse,	65,969	17,056,925	259
Honan,	66,933	29,069,771	434
Kiangsoo,	40,141	39,646,924	987
Nganhoei,	54,008	36,596,988	677
Kiangse,	68,596	26,513,889	386
Fokien,	45,761	22,799,556	498
Chekiang,	35,670	8,100,000	227
Hoope,	69,480	28,584,564	411
Hoonan,	83,229	20,048,969	241
Shense,	81,215	10,309,769	127
Kansoo,	260,599	19,512,716	75
Sechuen,	185,054	35,000,000	190
Quangtung,	90,243	20,152,603	223
Quangse,	77,856	8,121,327	104
Yünnan,	122,461	5,823,670	47
Queichoo,	66,759	5,679,128	85
Island of Hainan,	13,975	2,500,000	180
Island of Formosa,	14,982	3,020,000	200
Total,	1,553,993	404,946,514	260

With regard to the population W. Lobscheid, a missionary in Hongkong, states his belief that false returns are issued by the Chinese authorities, and 200,000,000 is rather too high than too low an estimate for the total population of the eighteen provinces of China Proper. Mr. S. Wells Williams, author of *The Middle Kingdom*, also believes the usual estimates of the population to be too high, and in a communication to the American Missionary Board (published in

the *Illustrated Missionary News* in 1879) states his belief that the total population does not much exceed 340,000,000. On the other hand, the Abbé David, who made extensive travels in different parts of China between the years 1864 and 1870, expresses his conviction that the enormous population of from 400,000,000 to 500,000,000 which is ascribed to China is no exaggeration; and the French consul, E. Simon, who also travelled for six years in different parts of China, says in his treatise on *Agriculture in China* that it is absolutely impossible to assume a smaller population for China Proper than 400,000,000.

PHYSICAL FEATURES.—Until comparatively recent times the interior of China was strictly closed to foreigners, and in spite of the information gained by the explorations of Pumpelly, Abbé David, Margary, Baber, Captain Gill, and above all of Baron von Richthofen (the last between 1868 and 1872) it still remains very imperfectly known. With the coast-line we are naturally better acquainted. Forming an irregular curve of about 2500 miles, it gives about 1 mile of coast for every 500 miles of area.

Whampoa, from Dane's Island, south-east coast of China.

One of its peculiar features is the vast number of islet groups by which it is bordered. It is not deeply penetrated by gulfs, the only one of great extent being that of Pechelee in the north-east, but numerous indentations of sufficient dimensions to form safe and capacious roadsteads are found in every quarter. With the exception of a bold and rocky peninsula in the province of Shantung, the shore from the Gulf of Pechelee south to the Island of Chusan is flat, and in many places so little raised above the sea-level as to be extensively inundated during a continuance of strong winds. From Chusan to the mouth of Canton River it is usually rocky, bold, and precipitous; from this point south-westwards flats, occasionally interrupted by bold headlands, again prevail.

Of the interior of China it is estimated that about two-thirds of the whole surface is mountainous. In the north-west there is a series of lofty mountain ranges, forming the abutments of the great table-land of Central Asia. The average height of these mountains is not known, but many of the summits are described as towering far above the line of perpetual snow. So far as is yet known the most clearly defined of these mountain ranges is that which runs from east to west about lat. 34° N., and usually appears in maps under the name of Peling

Mountains, although, according to Richthofen, the name given to it by the Chinese is Foonyooshan. It presents an almost uninterrupted barrier between northern and central China, only two passes across it being known west of Nanchow. The ranges take in general an eastern direction, and becoming the leading watersheds of the country divide it into three great basins, the waters of which are accumulated in mighty rivers and carried east to the sea. The general slope of China, as thus indicated by its principal rivers, is west to east, the mountains lowering gradually as they proceed towards the coast, and ultimately sinking down by a succession of descending terraces into level tracts, the largest of which, called the Great Plain, has a length from north to south of not less than 700 miles, and a width varying from 150 to 500 miles, and, consisting generally of a deep alluvium, which is of unparalleled fertility, probably maintains a denser population than any other portion of the earth's surface of similar extent. To this plain belong for the most part the provinces of Pechelee, Shantung, Kiangsoo, Nganhoei, and smaller parts of Kiangse, Hoonan, Hoope, and Honan.

Though the greater part of this plain is covered, as already said, with alluvium, a considerable part belongs to the region that lies under a more remarkable deposit known as *læss*. The læss region embraces the west and north of the province of Pechelee, Shanse, northern Shense, Kansoo, and northern Honan; considerable tracts also in Shantung and southern Honan, but in these districts the mountains are free from it, and in many parts it is overlaid by alluvium. It gradually disappears on the lower Yangtsekiang and lower Han, the last traces of it being seen on the shores of Lakes Tunting and Poyang and in the neighbourhood of Nanking. Towards the west its boundary is more sharply defined. On the north of the Tsinhingshan, a mountain range which runs parallel to the Foonyooshan and separates northern from southern Shense, læss is to be seen everywhere, while on the southern slope it does not appear at all. Læss is a deposit of a yellow colour resembling loam, but containing much more lime than loam, and having a more friable and porous texture. It is completely ramified in every part by an endless number of minute channels, and interspersed with remains of the roots of grass incrusted with lime; and, having a firmer framework, so to speak, than loam, it does not, like this substance, become converted by water into mud, but rather sucks up water like a sponge. It proceeds in China from the disintegration of the mountains of Central Asia by atmospheric agents, the disintegrated particles being conveyed by the wind sometimes to a distance of even 3000 miles. In consequence of this origin it has to some extent the effect of snow in depriving a landscape of its abrupt features, filling up valleys and other hollows, sometimes to an extraordinary depth, and rounding off crags and peaks. But the present characteristics of læss are not wholly due to the nature of the original deposit. It has been gradually modified in the course of ages by the effects of moisture and the vegetable and animal life which that moisture has enabled it to support. Every part of it is filled with the remains of organic life, prominent among which are those of land crustaceans, and to this circumstance it owes the firmness of

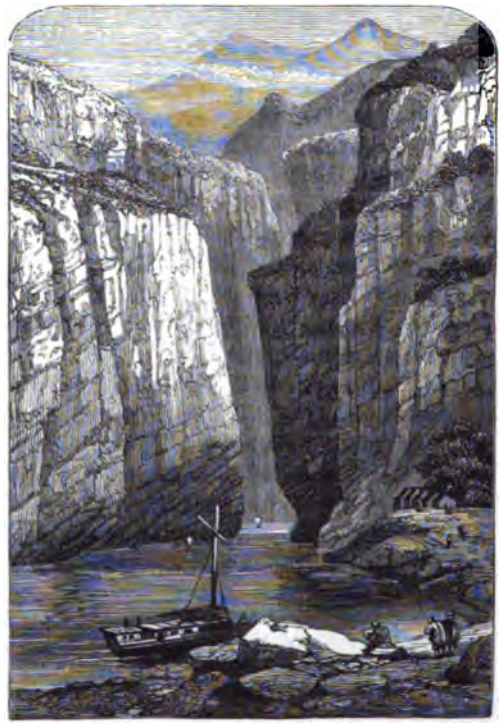
texture which it for the most part possesses. Where it is not firmly consolidated it is liable, like the sand of deserts, to be whirled aloft by the wind until it is deposited in new regions, from which cause Peking and its neighbourhood are often visited by storms of dust and sand. Where, on the other hand, the lœss deposits are firmly consolidated, it is found on a closer examination that the softness of outline above spoken of as imparted by the deposits to the landscape is apparent only in distant views, for there is no more striking characteristic of lœss than its tendency to split into chasms and fissures. For this reason lœss basins are, according to Richthofen, impassable except by the regular tracks. If a traveller deserts these he is sure to come upon chasms probably no more than a few yards in width, but it may be 40, 200, or often even a thousand feet in depth. By erosion these chasms are often worked out into the most fantastic forms. Everything in the lœss region is of a yellow colour, and in this region the Chinese word for *yellow* (*hoang*) came to be used as a name for earth, and one of the oldest of the Chinese emperors took the title of *Hoang-ti*, meaning "lord of the earth." It was no doubt in this region also, the seat of the earliest civilization of China, that yellow first came to be regarded as the sacred or national colour, the yellow earth which covers it being the source of its fertility. Even the rivers of the region are yellow, being coloured by the particles of lœss washed down by the rains, and it is to this circumstance that the Hoangho (Yellow River) owes its name, and hence also indirectly the Yellow Sea (in Chinese, Hoanghai).

Another part of China is of a prevailing red colour, and to it the name of the "red basin" has been given. This basin occupies the eastern half of the large province of Sechuen, and is, like the lœss region, of great fertility. It owes its red colour to the prevalence of red argillaceous sandstones and sandy clays.

The other geological features of China are very imperfectly known, but there is no doubt that all the leading formations are found in it. Primary formations are most largely developed in the mountainous regions of the west, where granite, gneiss, and primitive schists prevail. The same formations exist to a more limited extent in the south-east, where bleak mountains of granite give that district its distinguishing feature. The explorations of Richthofen have shown that the carboniferous system is more extensively developed in China (principally in the provinces of Hoonan, Honan, Shanse, Shense, and Sechuen) than in any other country in the world, the United States not excepted. The tertiary formation has its largest development in the north-east, and probably underlies the greater part of the alluvium which covers the surface of the Great Plain.

RIVERS AND LAKES. — No country of the world is better watered than China. The Yangtsekiang, which traverses the country centrally west to east, has a course of 2900 miles. The Hoangho, the next in size, has a course of 2000 miles, during the larger and lower part of which it gradually approaches the former, and being connected with it by the Imperial Canal, which has a length of 700 miles, furnishes what is said to be the most magnificent system of water communication in existence—a system which brings all the provinces into direct communication with each other, and gives an inland navigation which

meets with only one interruption from Canton to Peking. Besides these rivers and their numerous tributaries, the most deserving of notice are the Hongkiang, of considerable size, but still more commercial importance, having its embouchure at Canton; and the Euho, which, instead of the eastern course followed by the great rivers of China, flows north, forming part of the line of the Imperial Canal, and falls into the Gulf of Pechelee. The lakes of China are mere dilatations of the rivers, and, though numerous, are not individually of great extent. The largest, Tungting, province Honan, which furnishes an important affluent to the Yangtsekiang, has a circuit of 220 miles. The next in size, Poyang, province Kiangse, is 90 miles long by 20 broad, abounds in fish, and is remarkable both for the picturesque scenery around it and the numerous beautiful and populous islets which it incloses in its bosom.



Entrance to the Lukan Gorge, Upper Yangtsekiang.

CLIMATE.—The greater part of China belongs to the temperate zone, only a small portion of the south lying within the tropics. It has what is called an excessive climate, and has, like the rest of Eastern Asia, a far greater range of temperature than the parts of Europe situated in the same latitude. Peking, the capital, is nearly a degree south of Naples, and yet while the mean temperature of the latter is 63° that of the former is only 54°. In summer, however, the heat reaches from 90° to 100° in the shade, while the winter is so cold that the rivers usually continue frozen from December to March. Hence in the north of China silks, the common dress of summer, are in winter exchanged for fur and woollens. At Hongkong, notwithstanding the influence of the sea in checking extremes, the thermometer in June and July, the hottest months, frequently stands at 90°, and in winter, from December to March, sinks nearly to the freezing-point. At Canton and on the adjacent hills snow, though rarely, has sometimes fallen. At Shanghai, lat. 31° 20′, the range of temperature is still greater, the maximum reaching 100°, and the minimum falling at least 20° below freezing, or 12° Fahr. In the south the south-west and north-east monsoons blow with great regularity, and nearly divide the year between them. In the

north they are more variable, and the wind not unfrequently blows from other quarters.

As regards rainfall the majority of the provinces of China may be divided into two groups in which the alternations of the seasons are very different. One of these groups comprehends the provinces of the west and north, namely, Yünnan, Queichoo, Sechuen, Kansoo, Shense, Shanse, and Pechelee, the other those in the east, namely, Kiangsoo, Chekiang, Fokien, Kiangse, Hoonan, Hoope, and Nganhoei. In the first group the months of December and January are rainy, those of February, March, and April dry; the rains begin in May and increase in violence till August. From September to November the weather is again dry, except in some provinces (as in Sechuen), where it is misty though not rainy. Of this group the province of Sechuen has on the whole the best climate. It receives much more rain than those farther north, and has a more equable temperature than any of the other provinces. It has not the excessive heat and cold of the northern provinces, and is warmer than Yünnan and Queichoo, which have more snow in winter and colder summers than Sechuen. This province is also remarkably free from violent winds. In the second group the rains begin about the end of December and continue to increase in copiousness till April, and begin to abate in May. In June and July bright dry weather prevails, interrupted only by thunderstorms, but seldom by continuous rains. These begin again in August and become frequent in September. Shantung holds a middle place between the two groups, but belongs rather to the north-western than to the south-eastern. The province of Quangtung has a more tropical climate than any of the others. The heat in summer sometimes reaches 120° F. The rainfall is from 70 to 80 inches, and the excessive evaporation makes it unhealthy for Europeans.

Among the greatest scourges of the country, and perils of the adjoining seas, are the dreadful gales known by the name of typhoons, a corruption of the Chinese *ta-fung* or "great wind." They prevail at the time of the change of the monsoons from June to November, and are most frequent in September and October, and are distinguished from other cyclonic storms by their usually very small diameter, and by the fact that their centre often appears almost to stand still.

VEGETATION AND AGRICULTURE.—Among the trees of China the bamboo is perhaps the most valuable of all, not on account of its magnitude, though stems with wavy plumes of 50 feet in height are not uncommon, as on account of the almost endless uses to which it is applied. Several species of willow attain a large size, one being found with a girth of 15 feet. Oaks of different species are common, and the economical uses of the various parts—the wood, bark, and galls—are perfectly understood. Even the acorns of some kinds are ground into flour, and converted into a farinaceous paste. Coniferous trees are represented by numerous forms of pine, yew, and cypress. One of these, a cedar called *nan-muh* or southern wood, having the property of resisting both time and insects, is deemed too good for common use, and reserved for imperial purposes. The tallow and camphor trees abound; and the *koosoo*, a species of

sycamore, furnishes paper from its inner bark. Palms are not abundant, but the cocoa-nut flourishes in Hainan and on the adjacent coast. The Pandanus or screw-pine is abundant, but the date-palm is not known. The chestnut, walnut, and hazel are all indigenous. The fruit-trees include many species of fig, the mango, guava, wanghee, orange, peach, pomegranate, quince, nectarine, plum, and apricot. In general, the fruits are of indifferent quality. Among shrubby plants, the first place is unquestionably due to *Thea bohea* and *Thea viridis*, of which mention will afterwards be made. The next in importance is the mulberry. Among flowering shrubs or trees, the rose, with its numerous varieties, is most conspicuous. Nor must we omit to mention the hydrangea, the passion-flower, the lagerstrœmia, in its white, purple, and red varieties; Indian pride, the Chinese tamarisk, the cactus, the cereus, seen sometimes in the south with more than fifty splendid flowers in full bloom; and the camellia, in almost endless variety. The Chinese flora is particularly rich in varieties of the azalea, of which Mr. Fortune says: "Few can form any idea of the gorgeous beauty of the azalea-clad hill, when on every side the eye rests on masses of flowers of dazzling brightness and surpassing beauty." He adds, "Nor is it the azalea alone that claims our admiration; clematises, wild roses, honeysuckles, and a hundred others mingle their flowers with them, and make us confess that China is indeed 'the central flowery land.'" *Dwarfing* is a favourite occupation of the Chinese gardeners, and no small degree of scientific acquaintance with vegetable physiology is implied in the success with which they manage to cramp the natural growth of plants, and force them to assume the most fantastic forms. Many of the shapes are curious in the extreme, but the pity is that so much labour and ingenuity should be so perversely employed.

The practice of agriculture has always been held in the highest veneration in China. The emperor himself, to do it honour, repairs annually to an appointed spot with three princes, nine high officers, forty old and forty young husbandmen, and taking the plough in his hand, draws a furrow and sows some seed. A similar festival is held in the capital of each province. A branch of industry thus honoured can scarcely have failed to make great progress, and accordingly the agriculture of the Chinese has been lauded in high terms by almost all who have had opportunities of witnessing it. In the important processes of stirring the soil, eradicating weeds, economizing manures, and applying them in the form best fitted to nourish the crop and bring it to maturity, they display unwearied industry and no small degree of skill. It is a mistake, however, to suppose that they are adepts in what may be called the science of agriculture. They slavishly follow a routine which has been handed down without change from untold generations, and not only display no inventive powers themselves, but from overweening conceit obstinately refuse to profit by the inventions of other countries when placed before them. Their implements generally are of the rudest description, and though improved British ploughs have been sent out and urged on their acceptance, they reject them with disdain, preferring a rude shapeless thing drawn by oxen or buffaloes. They appear to have no idea of raising improved breeds of horses and cattle by the arts so well known and

practised in this country. The only animal of which the Chinese can be said to have furnished us with an improved breed is the pig.

Rice, as the principal food of the people, is the staple crop in the southern and eastern provinces. The rich alluvial plains which cover a great part of the surface are admirably adapted for its culture, and by careful management yield amazing crops—not one merely, but in the south latitudes two crops of rice in the hot season, besides a winter green crop usually ploughed in for manure. In the neighbourhood of Ningpo, lat. 30°, where the summer is too short to mature two crops in succession, they are still obtained by an ingenious device. The rice is sown in seed-beds, and afterwards planted out in drills. A first planting is made about the middle of May, and in two or three weeks after a second planting is made in the intervals between the previous drills. When the first crop is reaped in August, the other is still green, but being stirred and manured, and having plenty of light and air, comes rapidly forward, and is reaped in November. All the steps of the process are conducted with the greatest care; and the water-wheel, worked by the hand, or by an ox or buffalo, is kept in daily operation from the first planting of the crop till it is nearly ripe. The reaping instrument is not unlike our sickle; and the crop, when not thrashed on the field, as is generally the case, is carried home and built up into stacks, which so much resemble our own, particularly in the north, that the farmyards at a distance are scarcely distinguishable from those of Europe. The rice is not always grown on alluvial flats. The sides of the hills are often laid out in a succession of gently sloping terraces, which sometimes rise to the height of 600 or 800 feet above sea level, and planted with rice in drills running across the declivity, thus admitting of being irrigated by streams which, retarded at every step, move slowly forward without acquiring any impetus. In the first stages of the crop these terraces are clothed with luxuriant green, which contrasts finely with the rugged steeps in their neighbourhood, and forms an enchanting landscape. The same mode of culture being evidently applicable to other crops is in general use, and is noticed with admiration by almost all travellers as a distinguishing feature in Chinese husbandry. After rice, the staple crops on their terraces are sweet-potatoes and earth-nuts. In the neighbourhood of Canton the common winter crops are our own ordinary garden vegetables—potatoes, pease, onions, and cabbages, for the use of European residents. Throughout the province of Quangtung vegetables are planted in gardens four or five times yearly. In the north and west of China the crops principally consist of our ordinary cereals and legumes—wheat, barley, pease, and beans, besides sesamum, millet, buckwheat, &c. The wheat and barley are inferior varieties. Both the heads and grains are small, and the straw, of the wheat in particular, is so short that instead of being cut it is pulled by the hand. Varieties of the cabbage tribe are extensively cultivated for the sake of the oil extracted from the seeds. The raising of green crops to be ploughed in as manure has already been adverted to, and is common in all the districts where rice is cultivated. Two kinds of plants are chiefly employed; one of them, a trefoil, grown on ridges similar to those which form the intervals in our celery beds.

Four plants of the greatest economical importance, and so extensively grown as to form important branches of Chinese agriculture, deserve a separate notice. The first is the mulberry. Judging from the quantity of raw silk annually exported, and the general use of silk for dress, at least by the wealthier classes of the country, it is evident that thousands of acres must be appropriated to the cultivation of this shrub, and millions of persons employed in the different processes connected with it. The plants are all grafted and produce very fine thick leaves. They form trees, or rather bushes, which are not allowed to exceed from 4 to 6 feet in height, and are planted in rows, often along the banks of canals. The mulberry farms are small, and are generally worked by the farmer and his family, who not only plant, graft, and cultivate the mulberry, but gather the leaves, feed the silkworms, and wind the silk of the cocoons. The worms are kept in round bamboo sieves placed on shelves, fitted up in dark rooms. The Chinese silk is much heavier than the Italian, and preferred in fabrics requiring lustre and firmness. Whether it owes its quality to a particular variety of mulberry, or to the climate or soil, has not yet been ascertained. The best quality is produced in the province of Chekiang, but the greatest quantity in that of Sechuen. The second plant more particularly deserving of notice is the cotton-plant. That used in China, and called in the north provinces the *mie wha*, is of the same species as the American, namely, *Gossypium herbaceum*. This branch of cultivation is carried on chiefly in the northern provinces, and, according to Richthofen, seems always to accompany the deposits of lœss. The yellow cotton used in the manufacture of *nankeen* appears to be of a more stunted habit than the ordinary Gossypium, but has no characters which constitute a distinct species. It is chiefly cultivated in a level tract around Shanghai, forming part of the Great Plain, and is the staple summer crop. The next crop to be here mentioned, and to us and our government the most important of all raised in China, is that of tea. There are two varieties of the plant—*Thea bohea* and *Thea viridis;* and though it was long supposed that the former only yielded the black and the latter the green teas exported to this country, it is now proved that both kinds of tea are obtained from each. The great tea provinces are Quangtung, Fokien, and Chekiang, but the plant is largely cultivated also in Hoonan, Honan, Sechuen, and other provinces. In the first the *Thea bohea* is grown, and the tea is of inferior quality; in the other two the *Thea viridis*, which yields all the finer qualities, and furnishes the greater part of all that is exported to this country. In these two provinces, where the culture is most extensive and carried to its highest perfection, the tea plantations are usually formed in a deep rich loam, never on the low lands, but on the low hilly slopes. The plants, consisting of seedlings previously grown in nursery-beds, are placed in rows about 4 feet apart from each other every way, and when grown look at a distance like little shrubberies of evergreens. The leaves are gathered thrice—about the middle of April, when the leaf-buds are beginning to unfold; about a fortnight after, in the beginning of May, when the leaves are fully grown; and when the leaves again are newly formed. The first gathering yields the finest and most delicate tea, but with considerable injury to the plants.

The fourth of the plants referred to is the opium poppy, the product of which is in use for smoking in every part of China. The plant is grown in the provinces of Honan, Queichoo, Sechuen, Yünnan, and other provinces. In the last of these provinces it would appear to be the principal industry of the inhabitants. "With some fear of being discredited," says Mr. Baber in his *Report on the Route followed by Mr. Grosvenor's Mission between Talifu and Momein* (Lond. 1878), "but with a consciousness that I am underestimating the proportion, I estimate that the poppy fields constitute a third of the cultivation of Yünnan." The product of the Chinese poppy plant is inferior to that of India, from which country great quantities of opium are annually imported into China. The worst is that of the province of Queichoo.

Among other crops regularly and extensively grown may be mentioned sugar-cane, used chiefly in a green state; a plant called by the Chinese *tein-ching*, yielding a blue dye, and now ascertained to be the *Isatis indigotica;* tobacco, rape, hemp, the castor-oil plant, and numerous plants grown for their roots. White wax, the product of a species of Coccus reared on an evergreen tree with large ovate-acute leaves, may also be included among the agricultural products of China. It is an important product of the province of Sechuen. From this province also is obtained a kind of oil derived from a tree called the *tung*, which appears to grow best amidst the wildest cliffs.

A striking difference is pointed out by Richthofen between Chinese cultivation as pursued in the north-western provinces, where the soil consists of lœss, and as pursued in the southern provinces. It is to lœss, as already mentioned, that north-western China owes all its fertility, and but for its presence that region would be perfectly barren. All the mountains which in that part of the country have not received this fertilizing covering have the same desolate aspect as is presented by the Shantung promontory. They have scarcely any trees and but few shrubs, and little vegetation of any other kind. On the other hand, wherever lœss is to be seen there also is cultivation, however high the situation may be. In one locality, where the lœss was spread far and wide over a plateau 7000 feet above sea-level, Richthofen found the whole district covered with fields and villages, and in northern Shanse cultivation appears to be carried to the height of not less than 8000 feet. In the southern provinces, however, with the exception of Sechuen and Yünnan, the mountains, although covered to their summits with wild vegetation growing in the most luxuriant fashion, remain uncultivated except in those parts where their slopes are capable of being laid out in terraces and artificially irrigated. Seldom does cultivation ascend more than a few hundred feet above the plains and valleys, and far in the interior it hardly reaches the height of 2000 feet above sea-level. But, as already indicated, this does not apply to Sechuen, although this province lies beyond the limit of the lœss deposits. In the eastern half of this province, which is one of the most fertile districts in China (while the western half is one of the most inhospitable), the mountain slopes are said to be more carefully utilized for agriculture than in any other part of the world, even than in Japan. The same peculiarity of the cultivation of this province is remarked on by Captain

Gill, who travelled here in 1877. "In this province," he says, "the Chinese will cultivate the hillsides wherever the slope is not more than 30°," which, he observes, is about the steepest a man can walk up unaided by his hands.

In spite of their great fertility the northern provinces of China have greatly declined in productiveness as compared with what they were in former ages. Every step is said to furnish the traveller with evidences of a former period of greater prosperity. Large towns and villages, temples and the remains of other public buildings, are scattered here and there; and Peking itself, which contains numerous witnesses of a period of greater glory, is said to be now the scene of a continual decline. The principal cause assigned by Richthofen for this change for the worse is a deterioration of climate, probably ascribable to the reckless destruction of forests. From generation to generation the rains decrease in frequency but at the same time increase in violence. The fertile soil is washed down from the heights. Wild torrents rush down to the plains and cover large tracts of alluvial soil with sand and other detritus. Moral causes are, however, also partly to blame for the decline, and especially the increasing prevalence of the practice of opium smoking, the effect of which is seen not only in the degeneration of the people, but also in the withdrawal of large tracts from the cultivation of food grains, in order that it may be devoted to the production of the favourite drug.

ZOOLOGY.—On this subject not very much is known. Of the quadrumanous order of animals the most remarkable are the *dorre* and the *kahau*. The dorre is frequently called the Cochin-China monkey, and has a striking variety of stripes and colours. Still more curious is the kahau or proboscis-monkey, found also in Borneo, in which the properties of man and beast seem to be ludicrously caricatured. Of feline animals a small species of wild cat existing in the south is sought for as game, and served at table as a delicacy. Bears are frequent, and their paws are said to be in high request among Chinese gourmands. Both camels and elephants, though not indigenous, are largely domesticated. Bats are numerous; one in particular is said to be as large as a hen, and is extensively used as food. In feathered tribes China is understood to be extremely rich. Pheasants in particular are famous, both for abundance and for beauty. Among others are the well-known gold and silver pheasants, and above all, the barred-tailed pheasant, a most magnificent bird, with tail-feathers sometimes 7 feet in length, but extremely rare even in China, and so highly valued that the exportation of it is prohibited under the severest penalties. Water birds of almost every kind abound, but perhaps the most remarkable is the *leu-tse* or fishing cormorant, the training of which forms an important employment, and is so complete that when a bird has secured a fish which from its size he cannot manage singly, his neighbour darts down and assists him to complete the capture. The Reptilia of China include several serpents of monstrous size, not regarded as dangerous, and one of a black and white colour, which never exceeds 3 feet in length, but is very venomous. All the waters of China—its rivers, lakes, pools, canals, and even ditches—are full of fish. This is partly owing to the artificial means by which the natural supply is vastly

increased. Boat-loads of water containing spawn are carried to distant parts and deposited in ponds, where the fry, when so small as to be scarcely visible, are fed with various species of lentils, or with yolks of eggs. It is not uncommon even to resort to the more curious device of hatching spawn by placing it under a hen in an egg previously emptied of its contents, and reopening it a few days after, with the young fish in a state of incipient development.

MINERALOGY.—Perhaps the only metal which China is not known to possess is platina. Gold, though not thought to be very abundant, is obtained by washing the sand of several of the rivers, particularly those of the upper branch of the Yangtsekiang, and in the mountainous and almost inaccessible regions of Yünnan. All the metals except iron are, however, nearly confined to a single district occupying the eastern part of Yünnan together with the contiguous portions of Sechuen and Queichoo, and having an area, according to Pumpelly, of not less than 80,000 square miles. It is within this district alone that copper, silver, lead, tin, and zinc are found in sufficient quantity to make their working remunerative. Of these metals copper is by far the most important, and an alloy to which the Chinese give the name of white copper (*petong*), composed of copper, nickel, and zinc, with small quantities of lead, tin, and iron, is also largely produced. The quantity of silver also must be considerable, since it suffices for a large annual export, chiefly in payment of opium. The produce of lead, tin, and zinc, owing either to a deficiency in quantity, or ignorance of the method of extracting them economically from the ores, falls short of the consumption, and leaves room for a large importation. Quicksilver, in the form of cinnabar, is plentiful, but appears to be nearly restricted to the province of Queichoo, on which account this metal ceased to be exported and began to be imported when the province of Queichoo was in a state of rebellion. On the cessation of the rebellion it again figured among the exports. There is no want of iron either in the form of rich hematite, or in that of the carbonate of the coal-measures. Southern Honan and southern Shanse are, so far as is yet known, the districts in which it is found in greatest abundance. In the latter district the ores often occur in large masses, but the Chinese smelt only those which are easily fused and require no flux. Reference has already been made to the coal-fields of China. These are not only of great size but very widely distributed. Their total area is estimated by Richthofen, who was the first European that explored the great coal-fields of China, at about 200,000 square miles. Every one of the eighteen provinces contains more or less coal, but those most abundantly supplied with it are Hoonan, Honan, and Shanse. A very extensive coal-field exists in the south-east of the province of Hoonan. In it both anthracite and bituminous coal are found, and the anthracite bed alone is said to be about equal in extent to the Pennsylvanian coal-field. In Honan there are two coal-fields, one in the north and one in the south, the former (which extends also into southern Shanse) consisting entirely of anthracite, and the latter containing not only coal but also iron in great abundance. Another large coal-field lies in eastern Shanse, and the coal is of excellent quality, clear, firm, and brilliant, and largely worked. Northern Shanse is also rich in coal, and in Yünnan there is a large field of

anthracite near Chantungfoo. As most of the coal is raised without machinery by the rudest forms of manual labour, the price is necessarily high, and the use of it is therefore confined in a great measure to the rich, while the poorer classes are obliged to content themselves with coarse mixtures of culm and earth, or other still more inefficient and less attractive compounds. Salt is another mineral found in great abundance in China, especially in the provinces of Shanse, Sechuen, and Yünnan. The salt-mines of Kiaichow in the south-west of the first of these provinces are said to employ a greater number of persons than any other mines in the world, and appear to have been worked from the earliest beginnings of Chinese history, that is, for a period of perhaps five thousand years. Among other mineral substances may be mentioned nitre, alum, gypsum, and, more important than all, inexhaustible beds of kaolin or porcelain earth, the early possession of which by the Chinese, and their great skill in working it, has given the name of China to the beautiful ware which so long monopolized the market of Europe. A peculiar species of nephrite, called *juh yu* or *jade*, of a green colour, and valued chiefly for the property of emitting a musical sound when struck, though not peculiar to China, appears to be found in that country in its most perfect form, and is there held in the highest estimation.

MANUFACTURES.—In all the arts necessary to the comfort of life, and in not a few of those conducive to luxury, the Chinese have made considerable progress. One peculiar feature in their processes is the general absence of machinery. In almost every production the great moving power is manual labour. Even to give the names of all the arts practised by the Chinese would far exceed our limits, and therefore little more than a simple reference to those most remarkable for their economical importance, or the skill and ingenuity displayed in them, is here attempted. The silk stuffs of China have long borne a high name, and in several qualities are still unsurpassed. The loom in common use is worked by two persons, one of whom sits on the top of the frame, where he pulls the treadles and assists in making the various changes which must be made on the machine while in operation. By means of it the workman can imitate almost any pattern. The crapes and flowered satins, and damasks for official dresses, manufactured by them are particularly excellent. Everybody wears silks. It is the prescribed attire of high officers; soldiers are not considered in full uniform without it. The finer kinds of it form the ordinary dresses of the opulent, while the poorest manage to deck themselves in coarser, if not on common at least on gala days. The embroidery of silk is carried on to an amazing extent, the perfection to which it has been brought creating an almost unlimited demand, both domestic and foreign, and employing myriads of the inhabitants. Cotton goods are also largely manufactured, although large quantities of these fabrics made by machinery are now imported from Europe, especially Britain. Nankeen, however, once so common but now never seen in this country, is produced as before, of excellent quality, and continues to form an important branch of domestic manufacture. Linen seems not to be made in China. Flax is not grown, but a good substitute for it is found in the fibres of two or three plants, from which the beautiful grass-cloth, similar in appearance to linen, is extensively woven. The

only woollen fabrics are felt for the soles of shoes and winter hats, and a sort of rug or carpet. The consumption of leather in China is not great, and the manufacture of it is very imperfect. Owing to ignorance of the best methods of tanning, the leather is tender, and so porous as to afford scarcely any protection against moisture. The porcelain of China has been famous from the earliest periods. The manufacture of the finest forms of it being long known to the Chinese alone, gave them the monopoly of this article throughout the world. Their productions in this branch of manufacture are surpassed, however, even among eastern nations, by the Japanese in elegance of form and beauty of decoration, and the Chinese remain pre-eminent only in the great size of their porcelain vases. In the production of lacquered ware also, the Chinese exhibit a high degree of excellence, which appears to be largely owing to the fine varnishes which they have learned to extract from native plants. In working in metals the Chinese have only attained to mediocrity. Bells and tripods are occasionally made of large size, but the most of their castings are comparatively small. Fans, card-cases, seals, snuff-boxes, combs, counters, chessmen of wood, ivory, mother-of-pearl, tortoise-shell, &c., exhibit a finish and delicacy which no other workmen in the world can equal. The art of paper-making was practised by the Chinese at least as early as the middle of the second century of our era. The materials used in the manufacture are hemp fibres, young bamboo shoots, the bark of the mulberry, marine algæ, rice and wheat straw, &c. The most durable varieties are used for windows and umbrella coverings. Many other arts and inventions were also known in China earlier than in Europe. Printing from wooden blocks was practised in the sixth century of our era, and before the close of the tenth century the processes of lithography were known. Printing from movable letters was invented in the eleventh century, but did not come into use on account of the complicated nature of the Chinese alphabet. Gunpowder was also known at a very early date; and it may also be mentioned here that the polarity of the magnet had been observed by the Chinese, it is said, 2500 years before the Christian era, although the discovery was not utilized in navigation. The shipbuilding of the Chinese has always been indifferent. The commonest kind of vessel is what is known as a *junk*, which is of clumsy construction, without a keel and with a high prow and poop, and usually carrying three masts with lateen-sails of bamboo matting. They are to be seen in great numbers in all the ports of Eastern Asia, but the Chinese have recently learned to build ships on the European model, and these are now gradually taking the place of the junks.

COMMERCE AND COMMUNICATIONS.—The inland trade of China, aided by the unusual facilities which it derives from a system of water communication ramifying like net-work over all its provinces, is of incalculable magnitude. Its rivers and canals are so covered with junks and barges and swarms of smaller boats, that there does not seem much exaggeration in the estimate which makes the tonnage belonging to the Chinese little short of the combined tonnage of all other nations. The Chinese travel by water whenever it is possible, otherwise they go on foot or are carried in sedan-chairs made of bamboos. Goods are

sometimes conveyed on land in barrows or two-wheeled vehicles drawn by horses or oxen, but most commonly carriers or beasts of burden (asses and mules and, in the west, camels) are employed for the purpose. It is probably in consequence of the excellence of the water communications that so little attention has been paid to the construction of roads in China. The roads are few in number, and those which exist are for the most part ill made or badly maintained. On the 1st of July, 1876, a short line of railway (from Shanghai to Kangwang, a distance of six miles) was opened for traffic by an English company, and it was intended to continue the line to Woosung. This new means of communication was eagerly taken advantage of by the Chinese people, but was regarded with disfavour by the authorities, who, soon after it was opened, forbad its continuation, and before the end of 1877 ordered the traffic on it to be stopped. Ultimately the line was purchased by the Chinese government, but traffic has never been resumed.

Till the Peace of Nanking (1842) the foreign commerce of the Chinese was very limited, and was nearly confined to what was carried on by Chinese merchants in eastern waters. In earlier ages Chinese vessels visited even the ports of India, and it is now known beyond a doubt that they had reached the shores of America before the end of the fifth century. Till the date mentioned, however, commerce with European countries was conducted on land only at Maimachin opposite Kiachta on the northern frontier of Mongolia, and by sea only at Canton, as well as Macao, which had been open to the Portuguese since the sixteenth century, and Hongkong, which had been ceded to Britain in 1841. But in the Peace of 1842 a great impetus was given to the trade with countries beyond the limits of Asia by the opening of four additional ports to foreign traders (Amoy, Foochow, Ningpo, and Shanghai), and still more by subsequent treaties which have opened twenty-four ports in all to foreign commerce. In the Treaty of Tientsin in 1858 Swatow, Tamsui, Chinkiang, Kewkiang, Hankow, Chefoo, Newchwang, Tientsin itself, and some other minor ports were thrown open; and three additional ones were opened by the Convention of Chefoo, concluded in 1876. These are Wenchow, a seaport between Foochow and Ningpo; Woohoo on the lower Yangtsekiang, beyond Nanking; and Ichang, on the upper Yangtsekiang, 360 miles further inland than Hankow and nearly in the centre of the empire. At the same time liberty was granted to foreign ships to load and unload at Tatung on the Yangtsekiang, Aaking in Nganhoei, Hookow in Kiangsoo, and Woosue, Linghikow, and Shashee in Hoope, although Europeans were not allowed to form establishments at these places. By far the most important of the free ports, especially for imports, is Shanghai.

Among the countries which maintain commercial relations with the Chinese the principal are Great Britain, Russia, and the United States. The chief article of export from China to Great Britain is tea, and next after it, raw silk. In return Great Britain sends to China manufactured cotton and woollen goods, but the opium which China receives from India exceeds in value any other import. The imports from Britain and her great eastern dependency make up almost the whole of the Chinese importation, and Britain also holds the first place among

the countries receiving Chinese exports. In the case of exports, however, it does not out-distance other countries to such an extent as in that of imports, a considerable share of the exports going also to France, the United States, and Russia. The trade with Russia was formerly confined to the land route (by way of Maimachin and Kiachta), but since the opening of the Suez Canal an increased share of the trade with that country has been carried on by sea, between the ports of Canton and Odessa. In recent years an overland trade between Russia and China has grown up also at Kuldja. The tea conveyed overland from China to Russia is mostly, if not entirely, what is called *brick-tea*, from being made up in brick-shaped packets. The coasting trade of China is chiefly carried on in German and American vessels, and native steamers of recent construction.

A postal system is maintained in operation by the Chinese government, and partly also by private enterprise. The service is conducted chiefly by means of horses, relays of which are kept in readiness on the principal roads at intervals of about twenty miles. In consequence of the badness of the roads the service is very slow, from ten to twenty days being required, for example, for the distance between Peking and Shanghai (about 800 miles), and from forty to sixty for that between Peking and Canton. The government postal system is in use only for the conveyance of official correspondence.

Shanghai.

MONEY, WEIGHTS, AND MEASURES.—The principal weights in common use are the *léung* or *tael* = $1\frac{1}{3}$ oz. avoirdupois, *kin* or *catty* = $1\frac{3}{4}$ lb. avoirdupois, and *picul* = $133\frac{1}{3}$ lbs., used in weighing bulky articles; and decimals of a *tael*, called *mace* or *tsien*, *candareen* or *fan*, and *cash* or *le*, used in reckoning bullion, gems, drugs, &c., 10 cash making 1 candareen, 10 candareens 1 mace. The principal measures of length are the *chih* of $14\frac{1}{10}$ English inches, the *chang* equal to $11\frac{2}{4}$ feet, and the *li* equal to about one-third of an English mile, 94 li being equal to one degree. The only native coin now current is the cash, a small piece of thin circular copper about $\frac{3}{4}$ inch diameter, with a square hole in the middle for convenience of stringing. It should weigh 1 mace or 58 grains troy, and its value should be $\frac{1}{720}$ of a dollar, but by adulteration it has become one of the basest coins in existence, and is only worth $\frac{1}{1200}$ of a dollar, or $\frac{1}{8}$th of a farthing sterling, in other words 12 cash = 1 halfpenny. Repeated attempts have been made to establish a silver currency, but the dexterity of the Chinese

in adulterating the quality, and so passing off base as pure metal, has hitherto prevented its success. Native silver bullion, called *sycee*, and gold bullion of similar shape, and usually stamped with the names of the banker and workmen, and the year and district in which it is cast, are used in larger transactions. All taxes are paid in sycee of 98 per cent fineness. Private bankers are found in all large towns, and some of them pay interest on deposits. They issue paper-money, which passes current in the particular districts where they are known. The Mexican dollar, of the value of 4*s.* 2*d.*, is the current coin in Canton and the south of China. In Foochow broken Spanish dollars are mostly used as the medium of payment, while in Shanghai, Tientsin, Hankow, and the northern ports the tael weight of silver, equal to about 6*s.*, is commonly used. As a monetary denomination the tael is accordingly only a money of account.

PEOPLE, LANGUAGE, AND EDUCATION.—The Chinese belong to that variety of the human race which has been called Mongolian, but in them its harsher features, as represented in the genuine Mongols, are considerably softened. They are generally of low stature, have small hands and feet (the last artificially made so small in the females as to become a deformity), a dark complexion, much modified by the degree of its exposure to the open air, a wide forehead, black hair, eyes and eyebrows obliquely turned upwards at the outer extremities. In thickness of lips, flattened nose, and expanded nostril they bear a considerable resemblance to the negro. In bodily strength they are far inferior to Europeans, but superior to most Asiatics—their great assiduity and patient endurance of fatigue making them highly prized as labourers throughout the Indian Archipelago. The finest physical specimens of the race are to be seen in the coolies or porters of Canton. In their moral qualities there is much that is amiable. They are strongly attached to their homes, hold age in respect, toil hard for the support of their families, and in the interior, where the worst kind of foreign intercourse has not debased them, exhibit an unsophisticated simplicity of manners which recalls the age of the patriarchs.

The density of the population in China is greater than that of any other area of equal extent in the world. The average density throughout China proper is about equal to that of the Grand-duchy of Baden, and more than a third greater than that of Germany as a whole. When extensive districts of different countries are compared in this respect with districts of China, this country still stands pre-eminent. The density in East and West Flanders, in Belgium, and in Lucknow, the most densely populated district in India, is about one person to the acre, while in the Chinese province of Kiangsoo it is about half as much again, about three persons for every two acres, or 987 to the square mile. This district has in fact a denser population than the counties of Lanark and Renfrew, and that over an area of upwards of 40,000 square miles, instead of, as in the latter case, one of about 1143 square miles. It is a consequence of this extreme density of the population that a considerable emigration of Chinese to various parts of the world has been going on for many years. The emigrants proceed for the most part from the south-eastern provinces, especially Quantung and

Fokien. They are of two classes, either free labourers who emigrate at their own expense, or coolies who emigrate at the expense of those desiring to have their labour and bind themselves to serve for a term of years. Settlers of the former class have spread themselves over Japan, the Philippine Islands, the states of the Eastern Peninsula, the Dutch Indies, and other parts of Asia, and many of the islands of the Pacific; since the discovery of gold in California they have become numerous in the western states of America, and still more recently in our Australian colonies, and elsewhere. Wherever they go they are regarded with the utmost aversion by the white population, chiefly on account of the cheapness of their labour, which tends to lower the value of white labour, but also because they introduce habits repugnant to the feelings of the whites. The emigrants are almost all men, and their great aim is to hoard up enough savings to enable them to return to their own land. Coolie labourers are most numerous in Cuba and Peru. In Cuba they had been reduced almost to the condition of slaves, but by a recent treaty between Spain and China they have been put in a more independent position. In Peru their condition is still that of slaves, and the Chinese government has in consequence forbidden the introduction of any more coolies into that country.

The Chinese language is the most important and most widely spread of the so-called monosyllabic languages of Eastern Asia, in which each word is uttered by a single movement of the organs of speech. The difficulties which foreigners experience in learning to speak it are owing to the brevity of the words and peculiarities of pronunciation, numerous consonants and imperfect vowel sounds not known, at least in any European language, being in constant use, and varieties of tone producing endless varieties of meaning. It would seem, however, from the number of foreigners who make themselves understood in Chinese, that the difficulties have been somewhat exaggerated. The written characters appear to have been originally rude copies of the natural and artificial objects designed to be expressed by them, and hence so far as this system was carried each separate object must have been represented by a separate character. Some writers, assuming that the whole language was formed on this principle, have concluded that a knowledge of it was only to be attained by submitting to the intolerable drudgery of cramming the memory with myriads of arbitrary marks. Better judges declare that seven-eighths of the characters have been formed from less than 2000 symbols, and that any person well acquainted with these can both read and write Chinese. In writing or printing the characters, they are not arranged horizontally either from left to right as European languages, or from right to left as in Hebrew and the cognate languages, but in vertical columns, to be read from top to bottom as in the ancient Egyptian inscriptions. The literature of China comprehends treatises on almost all subjects—science, history, geography, belles-lettres, and poetry; embodying a literature of no mean description, though sometimes ludicrously overrated by being placed in competition with that of Europe. If it equals that of Europe in any respect, it is in the degree of encouragement which it receives; literary eminence being the sure avenue to the highest honours and offices of the state, and hence, in the words

of Dr. Morrison, "the *literati* are the gentry, the magistrates, the governors, the negotiators, the ministers of China."

With such rewards to stimulate industry and tempt ambition, we need hardly say that among the more comfortable classes education of the kind which promises to be best rewarded is almost universal. Even among the lower classes elementary education is tolerably widely diffused. At least from 80 to 90 per cent of adult males are said to be able to read easy books, especially of a narrative kind, and a good number also are able to write sufficiently well for ordinary purposes. There are no schools supported either in whole or in part by government; the influence of the state on education is almost confined to that which it exercises by the holding of examinations. Of these there are three corresponding to three literary grades or degrees. The examinations for the two higher degrees are held only once in three years, and those for the highest only at Peking, while those for the middle degree, as well as for the lowest, can be undergone in all the provinces. Those who pass the highest examination with most credit become *hanlins*, that is, members of the Academy of Peking, from which the members of the learned commissions intrusted by the government with the preparation chiefly of historical works are selected.

Besides Chinese proper there are within the frontiers of China several other races, some of which are regarded as remnants of older inhabitants. The Miaotse are found in the north-west of the province of Quangtung, and round their territory are settled the Punti (estimated to number 21,000,000), the Hakka (about 4,000,000), and the Hoklo (about 3,000,000). The languages of these tribes are dialects allied to the Chinese. The mountains in the interior of Hainan are inhabited by independent tribes allied to the Miaotse, and those on the east of Formosa by a race of savages of the lowest type. In the province of Sechuen also, particularly in the west, are numerous tribes (Lolo, &c.) which still maintain their independence, and on the frontiers adjoining Burma and Anam there are considerable numbers of Laos governed by their own chiefs but paying tribute to Peking. According to Captain Gill there are altogether eighteen tribes spread over the country from Yünnan to the extreme north of Sechuen. They live almost entirely by agriculture and cattle-rearing. Their villages are described by the same traveller as "perched like an eagle's eyrie right on the top of an almost inaccessible hill, or like wild birds' nests on the face of some perpendicular cliff." The houses are of stone, the lower part with narrow slits for windows like the loopholes of a fort. They are flat-roofed, and a kind of shed is usually erected on part of the roof. In religion they are Buddhists, the tribes adjoining Tibet holding this faith in the form of Lamaism. (See TIBET.) Manchoos and Mongols are scattered throughout China, especially in the towns. Manchoos are chiefly soldiers and officials. In every large Chinese town there is a Manchoo quarter, which is shut off by gates at night, and in some cases a Chinaman is not permitted to enter this inclosure.

RELIGION.—There is one general characteristic of all the religious or semi-religious systems that can be said to have become popular in China, and that is the mass of superstitious and idolatrous ceremonies with which they have become

incrusted, so much so that in most cases these observances seem to make up the whole of the religion as understood by the people. The Chinese seem from the first to have held the belief in a supreme being, "the producer of all things and the governor of all things, seen and unseen, terrestrial and celestial;" but no system that has become prevalent in China has made the worship of this being its chief feature, and the notions generally current regarding this being, and countenanced (though probably not seriously entertained) by the learned, are marked by the most degraded superstition. To the supreme being, as to nearly all the other gods worshipped by the Chinese, a birth-day is assigned, and on occasions of such moment that it is deemed requisite to offer public petitions to him (as for example in times of long-continued drought) idols of the superior divinities are carried in procession to his temple, in order that their intercession may add weight to the prayers of the mandarins. The supreme being is in fact conceived as holding the same position in the universe as the Chinese emperor does in his dominions, and as only the higher dignitaries of the empire are allowed to attend upon the emperor, so it is thought that the supreme being can be properly worshipped only by divinities of high rank. The worship paid to this being is accordingly something extraordinary and exceptional, and has no place in the popular religious observances. The inferior deities worshipped by the Chinese are very numerous. Among the most important are those worshipped under the titles of Lord of the Province, God of Wealth, Goddess of Mercy, God of Sailors, God of Thieves, the Five Rulers, &c. As to the last mentioned objects of worship no satisfactory account is given even by learned Chinese, but their worship is popular and is accompanied by idol processions through the streets, the general object of which is the expelling of pestilential influences.

The only truly national worship of the Chinese is the worship of ancestors. The oldest odes and hymns in circulation in China show that this kind of worship has played an important part from the earliest times, and it is still the most prominent feature in the religious observances of the people. Within historical times the Chinese have adopted more or less several other religious or semi-religious systems, but none of these has become in any sense popular except by being amalgamated with this national worship. In every Chinese household there is a tablet of one kind or another commemorating either the parents of the head of the household or the parents together with remoter ancestors. A tablet of the former kind commemorating only one individual (the mother having a separate tablet from the father) is held to be of greater dignity than one of the latter kind, and the right to erect the former tablet belongs only to the eldest son of a family. The younger members of a family worship before this tablet as long as they live with their eldest brother, but when they establish households of their own may erect only the general tablet. The special tablets belonging to the eldest of a family pass on his death to his eldest son, and thus the head of every family, according to the rule of primogeniture, should come into possession of all the family tablets of preceding generations. Usually, however, these tablets are preserved for only from three to five generations, after which they are either buried near the graves of the persons whom they commemorate or are

burned. As long as tablets are preserved they are erected in some part of the house and worship is paid to the deceased in presence of them at stated times every year. Besides these tablets kept in private houses there are others erected in ancestral halls or family temples. Into these halls are admitted under rigorous conditions tablets commemorating ancestors having the same family name, or belonging to the same branch of a family, according as the hall is a general one or intended only for a particular branch of a family. Worship is rendered to the deceased in these halls on five or six occasions in the course of the year. The rites performed in such celebrations either domestically or publicly might perhaps be regarded only as pious acts in commemoration of the dead, and by the more intelligent of the Chinese it may be that they are so considered; but by the great mass of the people it is manifest that they are looked upon as genuine acts of worship, and in any case they are always observed with the punctilious accuracy which the Chinese invariably show in matters of etiquette.

The systems that have been found by the Chinese compatible with this national worship, and have thus been able to acquire more or less popularity in China, are those of Laotse, Confucius, and Buddha; the first two of native, the last (which now has the most numerous adherents) of Indian origin. Laotse is the name usually given to a Chinese sage whose proper name was Lipeyang, and who is believed to have been born in the sixth century B.C. in a village belonging to the present province of Honan. The system founded by him is known as Taoism from the fact that it has its centre in the Tao (reason), the supreme being, the first cause both of the physical and the moral world. True virtue is made to consist in union with this being, which is accomplished in this life by inward purity and piety, not by outward observances, and at death by absorption in the supreme being. The practical morality taught by him was also of an exalted character, laying, like Buddhism and Christianity, the chief stress upon love of one's neighbour. A system such as this may seem little fitted to amalgamate with the national worship already spoken of, but Taoism as now observed has but little resemblance to the system taught by its founder. Taoist priests do indeed teach a comparatively pure morality, often, however, dealing too much with petty details; but they practise all kinds of magical rites and superstitious observances, and are principally supported by the fees they get from the people for whom they perform these ceremonies. Some of the priests live in monastic societies like the Buddhist priests, but these are not so numerous as those who live among the common people, and marry and raise families. In the Taoist temples there are always three images side by side, known as the Three Pure Ones (*Sang Ching*), no doubt a symbolical representation of the threefold nature ascribed by Laotse to the supreme being. Altogether the Taoists are not now very numerous in China compared with the adherents of the other two systems, and are not held in much esteem by the people, but they are so far popular that any Chinese would without scruple call in a Taoist priest to perform any ceremonies that he wanted to have performed.

Confucius, a Latinized form of Kongfutse or Khungfutse, that is, the teacher Kong or Khung, is the name of the founder of the system now universally pro-

fessed by the learned classes in China, and constituting in a sense the state religion. All the higher officers of state are required to perform at stated times certain ceremonies belonging to Confucianism, and in order to direct them in the due performance of these ceremonies they have each a Confucian priest attached to them, who is paid out of the imperial treasury. Confucius was a contemporary of Laotse, though his junior in years. He was born at Kioofoo in the province of Shantung in the middle of the sixth century B.C., and died in 479 or 478 B.C. The system which takes its name from him was from the first much more fitted than that of Laotse for amalgamating with the national worship of the Chinese, and indeed includes that worship as part of it. Confucius in fact did not profess to be the founder of a new system, but only to collect and arrange the fragmentary documents and detached maxims on rites, government, &c., which had previously existed, but had not been generally accessible. He arranged them, however, in such a manner as to give prominence to the ideas with which he himself was most impressed, and by so doing was able to exert an important influence on the Chinese mind. During his own life his doctrines had little heed paid to them, but after his death a sect sprang up which endeavoured to spread his name and influence, and gradually he came to be held by the Chinese in such reverence that within three hundred years after his death divine honours were paid to him. The duty to which he attached greatest importance was that of showing obedience and respect to parents, a view which harmonized admirably with the national worship. Next after that duty he dwells chiefly on that of subordination to superiors generally; and altogether the great aim of his system is to cultivate such feelings and habits as are most fitted to consolidate the political and social system. He inculcates, however, on rulers and superiors the duties of justice, mercy, and benevolence, no less than he does those of obedience and respect upon inferiors. Confucianism cannot properly be called a religious system, for though Confucius did not deny the existence of the gods, yet in regard to everything that was unseen he refused to say anything at all, as being beyond the reach of human knowledge. As observed at the present day the system consists, like the other popular systems of China, largely in the performance of innumerable ceremonies proper to different occasions, and the priests of Confucianism are hence often known as professors of ceremony. Those not holding any official employment are not compelled to resort to these professors, but it is considered reputable to have one of them to act as director of ceremonies at any important celebration, as at a marriage or a funeral. The rich accordingly nearly always have such a professor in attendance on these occasions, although the poor of necessity dispense with their services.

Buddhism appears to have been introduced into China about the first century of our era, and is now the professed religion of the great majority of the Chinese people. It is so, however, not to the exclusion of the systems already noticed, but in combination with one or all of them. Like nearly all other Chinese the Chinese Buddhists still worship their ancestors, and they will not hesitate on occasion to invoke the services either of a Confucian or a Taoist priest, or to perform certain ceremonies proper to these systems. All that China has derived from Buddhism

is the monastic institution characteristic of that religion, the worship of Buddha himself, and the use of the sacred writings of the Buddhists. The Buddhist monasteries in China are very numerous, and many of them large. The large ones usually own land or other property, but in China as in other Buddhist countries the priests are largely dependent on the bounty of the people. In Buddhist temples in China the images of Buddha are always in threes, like the images in the Taoist temples. The images of the Buddha temples are known as the Three Precious Ones (*Sang Po*). Buddha himself is known in China as Fo.

There are still two religions that have obtained a footing in China, but without amalgamating with the national worship. These are Mohammedanism and Christianity. The Mohammedans number from three to four million in the western provinces, and several hundred thousand in the province of Yünnan, where they are called by the Burmese and by Europeans *Panthays* and by the Chinese *Choitsoo*. But wherever they exist they form an isolated body. It was impossible for a religion which emphasized above all things the oneness of God to give any countenance to a worship that savoured of idolatry, and as this worship is clung to by the Chinese with a tenacity that has never been equalled by the adherents of any other religion, the Chinese could not but look upon the Mohammedans with aversion. And this aversion is no doubt increased by the fact that Mohammedans absolutely forbid the use of pork, which is the favourite flesh food of the majority of the Chinese.

Christianity was first introduced among the Chinese by Nestorians in the seventh century, again by Franciscans in the thirteenth century, but with most success by the Jesuits in the seventeenth. Under the direction of the famous Ricci, who rose high in favour with the Chinese emperor, Christianity made notable advances in the earliest years of the seventeenth century, and it advanced still further and more rapidly after the accession of the Manchoorian dynasty (1644). The second king of this dynasty, Kanghe, was an ardent lover of learning and a great patron of the Jesuit fathers, yet it was under him that Christianity received its first blow in the Chinese Empire. This arose out of the very difficulty that a religion such as Christianity was sure to encounter in China, that, namely, which was due to the firm attachment of the Chinese to the practices of ancestor worship. The Jesuit fathers themselves behaved with great adroitness in regard to this matter. They maintained that these practices were civil and not religious, and were consequently not derogatory to the Creator; and in proof of this they appealed first to the Chinese classics and then to the emperor. The decision of the emperor was in favour of the view maintained by the Jesuits, and had the Jesuits been left to themselves there is reason to believe that Christianity might then have been spread in some form over the length and breadth of the land. The members of two rival orders, however, appealed to the pope, and the decision of the pope was adverse to that of the emperor, who, enraged at this interference in what he considered to belong to his own domain, gave the papal nuncio twenty-four hours' notice to quit his realm, and proscribed the Christian religion. His love of learning prevailed on him to retain the Jesuit fathers, and to refrain from any active measures against the Christian converts. But the same leniency

was not shown by his successors, and more than once in the course of the eighteenth century the Christians of China had to undergo severe persecution. The Catholics were supposed to have been extirpated, but it was not the case. At the present day they have descendants in all the eighteen provinces of the Chinese Empire, and are numbered in all by hundreds of thousands. "Foreign priests," says a Protestant missionary resident in Northern China, "have even been smuggled into the interior in the darkest days of the persecution, and the constancy of the people has been such as to put many Protestant countries to the blush." Similar testimony is borne by Richthofen regarding the Catholics of Sechuen, where they are more numerous than in any other province. He considers them as genuine Christians, and states that they regard with deep reverence everything belonging to Europe. Like the Mohammedans the Christians congregate pretty much in colonies, and so keep each other in countenance. Various Protestant bodies carry on missionary operations in China, but hitherto with indifferent success.

CUSTOMS, MANNERS, DRESS, &c.—Early taught to suppress and conceal their real feelings, there is much of what might be called hypocrisy in the conduct of the Chinese, but it leads also to better results. Under the influence of this early training they scrupulously avoid all contradiction in conversation, and are careful not to use any offensive or irritating expressions to each other. From the same source arises the tedious, frivolous, and often absurd etiquette and extravagant compliment for which the Chinese are remarkable. But even here a wish to please and gratify is sufficiently evident. An invitation to dinner is written on a slip of red paper, and is sent some days before; it is usually in this style—"On the —— day a trifling entertainment will await the light of your countenance; Tsau Sanwei's compliments." This is followed by another card naming the hour. The dinner itself is sumptuous, wine and spirits are drunk freely, and the whole affair goes off with a great deal of boisterous merriment.

Besides cereals (in the south rice, in the north millet, maize, and wheat) and vegetables, fresh pork, fish, and fowls form the staple articles of food among the Chinese people. In Southern China the ordinary labourers in the low-lying districts plentifully supplied with fish, eat fish nearly every day and pork two or three times a month. Beef and mutton are rare, though commoner in the north than in the south. Almost all Chinese dishes are made in the form of a thick soup, which is eaten by means of two bamboo sticks (chop-sticks), with which a Chinaman manages to jerk his food into his mouth with great dexterity. Tea is largely consumed by all classes, but the poorer classes regard it as a luxury and often content themselves with a substitute made by pouring hot water over the leaves of some species of Artemisia and Ribes which grow wild on their fields. On the country roads there are, as in some parts of India, numerous shelters or resting-places erected by the benevolent, and in these tea is furnished to travellers free of charge. Another drink of which all classes in China are very fond is a kind of spirit distilled from rice and millet. The Chinese are not much addicted, however, to the abuse of intoxicating liquors. On the other

hand, the noxious practice of opium smoking is prevalent among all classes in spite of the efforts of the government to counteract it.

In ordinary cases strict separation prevails between the male and female branches of a household. Betrothment is entirely in the hands of the parents, and is conducted through the medium of a class of persons called *mei-jin*, or go-betweens, whose office of match-making is considered honourable. The marriage itself is conducted with much ceremony, gay processions, and other convivialities.

The return of the new-year is an occasion of unbounded festivity and hilarity in China. For some weeks previously the principal streets are lined with tables, upon which articles of dress, furniture, and fancy are disposed for sale in the most attractive manner. On new-year's morning all shops are shut, and the streets nearly deserted. As the day advances, however, they begin to fill with well-dressed persons in holiday attire, hastening to make calls of friendship and congratulation. Who that knows the practice in Scotland on similar occasions will fail to be struck with the resemblance between it and that of this remote empire! Gambling is universal in China. Hucksters at the roadside are provided with a cup and saucer, and the clicking of their dice is heard at every corner. Gaming-houses are opened by scores; and women in the privacy of their apartments while away their time at cards and dominoes. Dress, like other things, undergoes its changes in China, and fashions alter there as well as elsewhere; but they are not as rapid or as striking as among European nations. The full costume of both sexes is sufficiently commodious; its principal components are inner and outer tunics, of various lengths, made of cotton or silk, reaching below the loins or to the feet. The sleeves are much wider and longer than the arms, have no cuffs or facings, and in ordinary cases serve for pockets. The shoes are made of silk or cotton, with thick felt soles. The hair, as is well known, is allowed to grow to its full length, and is plaited into a single tail which hangs down behind—a custom introduced by the Manchoos on their conquest of the Chinese Empire in the seventeenth century. The extraordinary and universal practice, peculiar to China, of compressing the feet of females into unnatural form and dimensions has been already alluded to. Dwelling-houses in China are generally of one

Chinese Peasantry and Watermen Playing at Dice.

story. The common building materials are bricks, sifted earth, matting, or thatch for the walls, stone for the foundation, brick-tiling for the roof, and wood for the inner work. The fronts present no opening but the door. On the rivers and in the great ports many of the inhabitants live entirely on the water either in boats or on lines of rafts. A boat used as a dwelling-house usually has other smaller boats attached to it which serve as piggeries or vegetable or flower gardens.

GOVERNMENT AND DEFENCE, &c.—The government is an absolute despotism. The emperor unites in his person the attributes of supreme magistrate and sovereign pontiff, and as "Heaven's Son" is to heaven alone accountable. The emperor's principal ministers, four in number, two of whom are Manchoos and two Chinese, form the interior council chamber, and beneath them are a number of assessors who form the principal council of state. A peculiar institution is that of the censors, forty or fifty in number, who go out into the empire as imperial inspectors, and are privileged to make any remonstrance to the emperor without endangering their lives. The provinces, either singly or by twos or threes, are under a governor and subgovernor, and each province has also a chief criminal judge and a treasurer. Particular magistrates, estimated to number about 14,000, preside over particular districts and cities. The great object aimed at is to maintain a strict surveillance and mutual responsibility among all classes; in other words, to imbue them with fear of the government, and infuse a universal distrust. Since the accession of the present Manchoo dynasty (1644) it has become the custom to change all the higher officials about once every three years in order to guard against the danger of conspiracies in favour of the older Ming dynasty. This custom has, however, one very bad effect. The officials have little inducement to devote themselves earnestly to their duties, and accordingly utilize the time of their appointment to fill their own coffers. This practice is all the more inevitable since the salaries paid them are ridiculously small, while the outlay expected of them is considerable. They are thus almost compelled to resort to arbitrary exactions in order to furnish themselves with the means they require. In all the provinces there are, besides the regular officials appointed by government, tribal and family chiefs who have managed to preserve certain rights recognized by custom, and on whom devolve

Flower Boat.

Family Boat.

certain duties. On them falls the task of maintaining the temples, regulating the public worship and the celebration of the religious festivals, appointing teachers, and raising the revenue necessary for performing these functions. The term *mandarin* applied by Europeans to all Chinese officials is not a Chinese word, but was first so applied by the Portuguese. The corresponding Chinese name is *quan*.

The general revenue of the country is principally derived from a tax on land and rice, the monopoly of salt, certain stamp-duties, and customs duties on foreign and inland merchandise. The collection and administration of the revenue are extremely ill managed. It is a known fact that there is a regular deficit, which the governors are obliged to cover by extraordinary taxes and loans. The only financial body that deserves any credit for its administration is the inspectorate of maritime customs, established in 1854, the head of which in each port is a European. Originally instituted to watch over the collection of the duties pledged as security for the payment of the war debt to the European powers, the Chinese government has maintained this board in operation for its own convenience.

Mandarin, in Dress of Ceremony; Chinese Lady, her Son, and Servant.

The Chinese army on the old model, as it still exists in the frontier provinces of the north and west, is miserably organized and equipped. It is not a standing army in the European sense of the phrase, the soldiers not living in barracks, but in their own huts, and having as a rule civil occupations in addition to their military duties, and they are only called together on certain occasions for military exercise by their superiors. The great body of them are of the most worthless description, scarcely fit for show, and not at all fit for use. In the eastern provinces, however, some regiments have been formed in the neighbourhood of Peking, Canton, and other large towns better fitted by their equipment and organization to cope with European troops. They are now armed with Remington muskets and rifled cannon, and are drilled by European (principally French) officers. Conscription is not in use in China, and the army generally is recruited by voluntary enlistment, chiefly among the Manchoos. On the old organization it is still customary for the son to succeed the father in the army. Besides forming the new regiments just spoken of, the Chinese have still further provided for the defence of their country by constructing a series of forts

on the European system along the Peiho, and at Shanghai, Canton, and other places. Their navy also has been greatly improved, and large ships of war built after European patterns have even been launched from Chinese building-yards. The old war junks were large and showy, but miserably equipped, and were not able to clear their own seas of pirates. The guns were so fixed on wooden carriages that they could neither be elevated nor depressed.

CHIEF TOWNS.—It has been noted by travellers as a peculiarity of the greater part of China that the people are fond of congregating in towns, and that even the smallest hamlet has something of the aspect of a town, and contains within itself a trading and industrial as well as an agricultural population. Sechuen is, however, singled out as an exception to this rule, the tillers of the soil dwelling in that province in isolated farm-steadings in the midst of their fields. In that province, accordingly, there is a sharp contrast between town and country which does not exist elsewhere. China contains, according to the estimates of population given in Behm and Wagner's publication already cited, no less than forty towns with a population of 100,000 or upwards, and twenty-eight with one of 200,000 or upwards, and among these are some of the largest towns in the world. Four are credited with a population of a million or more, namely, Canton, with one of 1,500,000, and Siangtan in Hoonan, Singanfoo in Shense, and Chanchowfoo in Fokien, each with one of a million. Most Chinese towns are said to have a close resemblance to one another. There is a central nucleus generally surrounded with a wall flanked with towers and a ditch. In that nucleus reside only the officials, and its streets are accordingly comparatively deserted, while the traffic and bustle of the town are confined to the suburbs. All the streets are narrow, crooked, and dirty. Their breadth is only from nine to thirteen feet, in the south often less, so that they cannot be entered by vehicles of any sort. Gutters are wanting. But in spite of the throngs that crowd these narrow streets disturbances seldom arise, and even during the night a remarkable degree of quiet prevails.

Peking ("north court"), the capital of China, is far from being the most populous city in the empire, being estimated to contain no more than 500,000 inhabitants. It covers an area of vast extent, however, and at one time contained a larger population. Its outer wall is thirty feet high and about 25 miles in circuit. The present city consists of two portions, the north or Manchoo city (Nuiching), and the south or Chinese city (Waiching). The former is built in the shape of a parallelogram with its sides looking to the cardinal points, and, like Mandalay, the Burmese capital, is made up of three inclosures one within the other, each surrounded by its own wall. The innermost inclosure is called Kinching (forbidden city), and contains the imperial palace and the buildings connected with it, in which the emperor and royal family reside. It is about two miles in circuit. The second inclosure was originally intended for the officers of the court but is now occupied by merchants and tradesmen, and the third belongs to the general body of the people. Some of the principal streets are exceptions to what was said of the general narrowness of the streets in Chinese towns, being more than a hundred feet wide. Since the Treaty of Tientsin

(1858) English and French ambassadors have been allowed to reside at Peking, and the same privilege has subsequently been extended to the United States and other nations. As a place of residence for Europeans it is by no means so unhealthy as the more southern cities. The range of temperature is indeed much greater in Peking than in the latter cities, but its atmosphere is drier.

Canton (in Chinese, *Quangchoofoo*), the most populous city in China (1,500,000), stands on the banks of the Chookiang in the province of Quangtung, and was long the only port in China open to the ships of Europe and America. It is situated in the midst of charming scenery, hilly towards the east. Within the

Room in a Chinese House, Peking.

town the heat of the sun is excluded not only by the narrowness of the streets but also by lines of piazzas covering them. Chiefly in consequence of the narrowness of the streets wheeled vehicles are not used in the town, all burdens being transported on bamboo poles laid across the shoulders of men. The European factories, called by the Chinese *hongs*, are situated on a very commodious quay on the bank of the river. Nearly a league from the city proper is the *Boat-town*, consisting of about 40,000 vessels of various kinds arranged close to each other in regular rows, the rows being separated by passages sufficiently wide to allow other vessels to pass. These form a kind of floating city, the inhabitants of which, numbering about 300,000, are prohibited by law from settling on shore. Canton is still one of the chief seats of foreign commerce in China, although the opening of other ports in the empire has checked the commercial progress of this port. The principal exports are tea, silk and silk goods, and sugar. It was here that that form of corrupt English known as *pijin* (that is *business*) *English*, which

is rapidly becoming the general medium of intercourse between Chinese and foreigners, was developed. The climate of Canton is healthy, although there are sudden and frequent changes of the weather.

Chanchowfoo, the largest town in Fokien, and one of three above mentioned as having each a million of inhabitants, possesses unusually wide streets and handsome shops, and has manufactures of mirror-glass, leather, quicksilver, and other articles. Siangtan in Hoonan, another of the three, is a place of great trade, and in particular appears to be the chief centre of the trade in drugs and medicinal herbs for the whole empire. The traveller meets in its neighbourhood string after string of coolies carrying large water-tight boxes filled with these commodities, which are brought to Siangtan from all directions round, and redistributed from that centre by all the routes leading out of it. Singanfoo, the capital of Shense and the third of the three towns mentioned, owes its importance to its situation at the junction of the trade routes connecting the basin of the Wei with the provinces on the north and east, as well as with Sechuen on the south-west. It is the starting-point of the trading expeditions to Yarkand and Ili, expeditions in which cars drawn by two mules are the ordinary vehicle both for travellers and goods. Camels are little used. The time required for the journey is eighty days, and food for man and beast is to be found along the whole route, except during the three days' march across the Desert of Gobi. For more than a thousand years (from the third century B.C. onwards) the rulers of China had their residence in this city or its immediate vicinity. Between 1868 and 1870 it was closely besieged by the Mohammedan rebels, who shut it off completely from external intercourse. The remaining towns in China containing 200,000 inhabitants or more are—Tientsin (950,000), and Changchiakheu (200,000) in the province of Pechelee; Weihien (250,000), Tengchoofoo (230,000), and Tsinanfoo (200,000) in the province of Shantung;

New China Street, Canton.

Taiyuenfoo (250,000) in Shanse; Soochow (500,000), Nangking (450,000), Yangchow (360,000), and Shanghai (278,000) in Kiangsow; Foochow (600,000), Leinkong (250,000 to 300,000), and Jongping (200,000) in Fokien; Hangchowfoo (400,000 to 800,000) and Shaohing (500,000 to 600,000) in Chekiang; Hankow (600,000) and Woochang (200,000) in Hoope; Chingtoofoo (800,000) and Chungkingfoo (600,000) in Sechuen; Fachan (400,000) and Chowyang (200,000) in Quangtung; Hoochow (200,000) in the island of Hainan, and Taiwanfoo with Takow (235,000) in Formosa. A few of these require separate notice.

Tientsin may be considered the river-port of Peking, with which it has water communication by the Peiho river, a distance of about 120 miles by its windings and 80 miles by land. At the same time only small junks can reach the discharging place several miles below the walls of Peking. Foreign vessels of ordinary burden cannot reach the city of Tientsin itself on account of a bar at the entrance to the river, and hence their cargoes have to be transhipped to native craft at the roadstead of Takoo. In addition to these drawbacks the river is regularly frozen up from October to February or March. Nanking or Kiangning, the capital of the province of Kiangsoo, stands about three miles south of the Yangtsekiang, which is here a mile and a half broad and twenty-five fathoms deep. It is an important manufacturing town, a large number of the inhabitants being employed in silk, satin, and cotton weaving. The town gives its name to the fabric called *nankeen*. From the spring of 1853 to the 19th of July, 1864, the city was in the hands of the Taipings (the Mohammedan rebels of the west), who made it their capital. The famous porcelain tower or pagoda, which was built early in the fifteenth century by an emperor of the Ming dynasty, and which stood a short distance outside the city, was totally destroyed by the rebels. Soochow in the same province, on the Grand Canal about a hundred miles south-east of Nanking, is one of the most beautiful and most beautifully situated towns in all China, and is regarded by the Chinese, on account of its splendid buildings, its picturesque scenery, its delightful gardens, and its beautiful women, as a sort of paradise. The silks manufactured here are said to be the best in the world. An uninterrupted series of towns and villages leads south-eastwards through some of the richest tracts of cultivation in China to the great port of Shanghai,

A Street in Tientsin.

which lies on an extensive and fruitful plain intersected by numerous navigable channels, at the head of a creek named the Whangpoo, which has its outlet into the Yangtsekiang at Woosung, about 14 miles distant by water and about nine by land. There is a foreign settlement adjacent to the native city, but quite distinct in its boundaries, government, and commerce, and this settlement is itself divided by two smaller creeks into three sections, one under French, one under British, and one under American jurisdiction. Since 1865 a complete judicial establishment has been set up in the British section, and this now forms the supreme court for all British subjects in China and Japan. The foreign trade of Shanghai is greater than that of any other of the Chinese ports. Hankow ("the mouth of trade"), an open port in Hoope, stands on the left bank of the Yangtsekiang adjacent to the other two large towns of Wochang and Hanyang, is well characterized by its name, consisting, as it does, almost entirely of shops and warehouses. Every product has its street or quarter devoted to it. The porters in the street march behind one another in regular rows, and in spite of the dense crowds that throng the streets perfect order prevails. Chingtoofoo in Sechuen is one of the largest cities in China, and in respect of beauty and elegance does not yield even to Soochow. It wants indeed the splendid buildings and the large gardens of the latter town, but on the other hand its streets, which are carefully paved, are more spacious and regular, and the fronts of the houses are adorned with beautiful and carefully carved woodwork. Choongkingfoo, the other large town in Sechuen, situated at the junction of the Kialing and the Takiang (Yangtsekiang), is pre-eminently a trading town, and is far behind Chingtoofoo in respect of elegance and beauty.

HISTORICAL SKETCH.—Native chronicles carry back the history of the empire to about 2600 years before Christ, but the earliest portion of this history is entirely fabulous. A reliable chronology is not met with earlier than 840 B.C., at which time the third dynasty of Chinese rulers was in power. At this time the Chinese Empire was a feudal sovereignty and embraced only the north-western provinces of the present China proper. A king of the fourth (Thsin) dynasty was the first who, in the latter part of the third century B.C., destroyed the power of the feudal nobility, brought the whole power into his own hands and extended the empire to the sea; and it was still later that the southern provinces (Fokien, Quangtung, Quangse, and southern Queichoo) were peacefully occupied by colonization. At subsequent periods the empire was several times broken up into smaller sections, and in the thirteenth century Mongols under Genghis Khan and his successors gradually pressed further and further south, until at last they established themselves on the throne. The Mongol dynasty (the nineteenth) is dated by the Chinese historians only from 1280, though in fact the whole of China was virtually in the power of the Mongols at least twenty years before. It was by this dynasty that Yünnan was added to the empire, that province having previously been conquered by the Mongols. An insurrection headed by a Buddhist priest succeeded in 1367 in dethroning this dynasty, and this priest became the founder of the twentieth (Ming) dynasty, whose dominions, however, did not embrace the Mongol territory on the west. This dynasty was

overthrown in its turn in 1644 by the one still reigning, the Manchoo or Tsing dynasty, founded by invaders from Manchooria; and under the first kings of this dynasty the Chinese Empire was extended to its present limits. Formosa was annexed and colonized, the greater part of Dzoongaria, the whole of the present Chinese Turkestan, and Tibet were subjugated. Regarding the commercial relations of China with European countries, see above, under Commerce and Communications.

FOREIGN POSSESSIONS.

HONGKONG ("Red Harbour") is the name of a small island now belonging to the British off the coast of Quangtung, near the mouth of the estuary at the head of which Canton is situated. It is about ten miles in length by about seven and a half in breadth, and is separated from the mainland by a strait which at its narrowest part is only about a quarter of a mile wide. The surface is mostly composed of lofty barren rocks, which rise from the sea to the height of from 1000 to 2000 feet, and so abruptly as to leave hardly any space to build upon. The vegetation is altogether insignificant. As regards climate Hongkong was at one time considered very unhealthy, but it is now believed to be quite as well suited to European constitutions as any of our other tropical possessions in the east. The importance of the island is entirely due to the facilities it affords for commerce. On the north side of the island on a magnificent bay capable of accommodating any number of vessels and affording excellent anchorage and deep water close in shore, is the thriving town of Victoria, where the commerce of the island centres. The bay is crowded with shipping of every nation and with dense masses of Chinese boats and larger craft. The town itself includes a European and a Chinese quarter, the latter skirting the bay along the western shore, and ascending the hillside and the faces of the ravines above. The island of Hongkong itself producing nothing, its commerce is entirely in transit. The foreign commerce, that is the commerce beyond China, is carried on chiefly with Great Britain, the United States, and Germany, about a half being with Britain. In addition to the island itself the British territory in this quarter includes a small tract on the mainland opposite. The revenue of the settlement is derived from land-rents, licenses to sell opium, spirits, &c., taxes, and other sources. There are no customs' dues. Hongkong was ceded to Great Britain first in the Treaty of Canton in 1841, and the cession was confirmed in the following year in the Treaty of Nanking. The portion on the mainland was acquired under the Treaty of Tientsin in 1858. The total population in 1875 was 122,000, of whom about 6000 were whites.

MACAO is a Portuguese possession occupying a small narrow peninsula projecting from the south of the island of the same name, which lies off the coast of the same province as Hongkong and near the mouth of the same estuary as that island but on the opposite side. The total area of the settlement is only about four square miles, and a barrier wall stretching across the isthmus by which it is connected with the rest of the island is strictly guarded by Chinese

troops to prevent foreigners from trespassing on the native portion of the island. The town is open to the sea breezes on every side, and is considered one of the healthiest places of residence for Europeans in south-eastern Asia. Near it, in a beautiful garden commanding a delightful view of sea and land, is the "grotto of Camoens," where the poet is said to have completed the *Lusiad*. The harbour lies between the peninsula and the island of Tweelienshan on the west. The principal exports are cassia, anise, and other spices and drugs, the principal import opium. Macao was long the seat of an infamous coolie traffic, which was winked at by the Portuguese authorities. The kidnapping of natives for exportation was openly practised, till at last the British authorities at Hongkong interfered, and in December, 1873, a proclamation was issued by the governor of the island entirely forbidding the traffic. Since then the shipping of Chinese emigrants for ports in South America has been again permitted under such conditions as may be expected to prevent the recurrence of the former abuses. Macao was first settled by the Portuguese with the permission of the Chinese emperor in 1557. An annual tribute is paid by the Portuguese to the Chinese government. The total population of Macao and the two small islets of Taipa and Colovane dependent on it is about 77,000.

MANCHOORIA.

Manchooria, the native land of the dynasty now reigning over the Chinese Empire, lies north-east of China Proper between Mongolia on the west and the Russian Amur province and Corea on the east, and between the river Amur on the north, separating it from Russian territory, and the Yellow Sea on the south. On the west the boundary separating it from Mongolia is formed in the north by the lower course of the Argun river, and part of the Khingan range of mountains, and further south by a line joining the Nonni with the Hersoo. It is divided into the provinces of Shingking or Leaotong in the south, Kirin or Girin in the east, and Tsitsikar in the north. The first is the smallest but by much the most populous, the density being about 140 to the square mile.

The surface is traversed by numerous ranges of hills and mountains, none of them very high, and between these ranges stretch well-watered and tolerably fertile valleys. The general slope of the greater part of the land is towards the north, where the rivers empty themselves into the Amur, but the province of Leaotong drains southwards into the Yellow Sea. In general this territory seems well adapted by its soil, climate, and mineral wealth for receiving the surplus population of the teeming provinces of northern China, but a large part of it, especially in the north-west, is still very imperfectly explored except in the immediate neighbourhood of the principal rivers. Russian steamers now ply on the Soongari, and even ascend the Nonni as high as Tsitsikar. The mountains are for the most part well wooded, and the forests are sometimes of great extent, the region traversed by the Soongari below the influx of the Hoorka being, for example, an unbroken expanse of woodland. The plains and valleys are either covered with pastures enriched by frequent and abundant rains, or (as in most

parts of the south and east) well cultivated. The principal agricultural products are millet, Turkish wheat, potatoes, poppies, and various kinds of vegetables. There are numerous herds of cattle, sheep, and horses, though not nearly so numerous as might easily be supported by the nutritious grass with which the territory is so abundantly supplied. Animals of the chase, including bears, stags, wild goats, and sables, are found in great plenty, and are eagerly hunted by a considerable nomadic population. The minerals include coal as well as gold and silver, but mining is forbidden in order that the sacred soil of the home of the imperial family should not be disturbed. Pearls, however, are obtained in considerable number.

The population of this territory no longer consists mainly of Manchoos. Of the 12,000,000 that are estimated to make up the whole population about 11,000,000 are Chinese, who are rapidly increasing in numbers and bringing larger and larger areas under cultivation. About three-fourths of the Chinese are in the southern province, which is administered exactly as a Chinese province, while the other two provinces of Manchooria are under military government. Even this province does not yet support as large a population as it is capable of maintaining, and accordingly still affords scope for Chinese immigration, but the Chinese have already pushed their way a considerable way northwards in the adjoining province, and have even spread over a large part of the valley of the Hoorka. The Manchoos are a tribe belonging to the same stock as the Tunguses in Siberia, and like their kinsmen are passionate hunters and more inclined to a nomadic life than to the settled life of cultivators of the ground. They are lighter in colour than the Chinese, and superior in physical development and in energy, though less intellectual. Their language is said to be the most polished of the family to which it belongs, and the only member of that family that has developed a literature. Being very regular in its construction, and accordingly easily learned, it is of great service to Chinese scholars, inasmuch as all the most important Chinese works are translated into Manchoo, and in this language are much easier to read than in the original. Since the accession to the throne of China of a Manchoo dynasty in 1644 the Manchoos have been gradually becoming amalgamated with the Chinese, and are destined sooner or later to be completely incorporated with that people. Those who remain pure in Manchooria are almost entirely nomadic. The chief towns in Manchooria are Mookden (170,000) capital of Leaoting, Kirin (120,000), and Tsitsikar (60,000), each capital of the province of the same name, and Yingtse, Liaoyang, Quangchungtse, and Newchang, all of which have a population of at least 60,000. Newchang is a port open to foreign trade, and is much frequented by German merchants.

MONGOLIA.

Mongolia is a vast region situated between China Proper and Asiatic Russia. It is bounded in most parts by mountains, within which there is first a stretch of undulating plateau land with an average height of between 5000 and 6000 feet

above sea-level, and within that again an extensive depression now forming the Desert of Gobi, but at one time to all appearance the bed of a sea. The height of this relative depression is in the east about 3500 feet above sea-level, but it gradually rises towards the west. The mountains in the west and north are those of the Altai range with its continuations and parallel chains (chiefly in the west), those in the east the Khinghan range, which forms the boundary only in its northern portion, Mongolia lying on both sides of it further south; those on the south-east the Inshan and Alashan ranges following the left bank of the Hoangho. Further west occurs the Nanshan range, but the steppe land on the northern slopes of this range, inhabited partly by nomadic Mongols and Tanguts (a Tibetan tribe) partly by settled Chinese, is reckoned as belonging to the Chinese province of Kansoo. Still further west and in a higher latitude is the Thian-Shan range, forming the southern boundary of the westernmost part of Mongolia. In general the slope of these mountains is very gradual towards the interior, although often very abrupt on the outer side. The only portion of this region that is well-watered is the extreme north-west. From that region the Irtish and Yenisei flow into Siberia, and further east the Selenga also finds its way into Siberia, and the Keroolen flows into the Amur; but all other streams in Mongolia terminate in inland lakes without an outlet and consequently salt. Although the latitude of Mongolia corresponds to that portion of Europe which lies between Naples and Munich the climate is very cold and inhospitable. In winter the thermometer falls to 28° below zero, Fahr., the wind blows violently from the north-west, and the deep frozen snow is whirled aloft and driven on in dense clouds which make travelling impossible. But the summer, though short, is as extreme in its heat as winter is severe in its cold. In July the temperature in the shade rises in some places to 98° Fahr.

Except in the extreme south-east and north-east, where considerable tracts have been brought under cultivation by Chinese settlers, almost the only products of Mongolia are those of cattle-rearing and the chase—cattle, sheep, horses, sheepskins, tallow, horns, and furs. The animals chiefly reared are, in the north, the horse and sheep, in the south, the camel and goat. Among wild animals the majestic argali sheep is found in the frontier mountains, and in the desert are found a species of antelope (*Antilope gutturosa*) and a kind of wild camel smaller and darker than the tame one. Wood is scarce, and singularly enough, where it is found, is almost confined to the northern slopes of the mountains, where stunted pines grow in sheltered nooks. The principal objects of cultivation in the cultivated tracts of the south-east are wheat, millet, oats, and opium, the last of which is said to be the most lucrative. In these tracts, as in the north of China Proper, there is to be seen among the means of conveyance a kind of wheelbarrow in which the force of the wind acting on a sail is employed to assist the labour of men and animals.

The principal trade route across Mongolia is that by way of Maimachin, Oorga, and Kalgan, but caravans sometimes follow other routes, and much has recently been added to our knowledge of the interior of this region by various travellers either accompanying caravans along the less frequented routes or

following an independent course. One of the most important of these journeys was that of Mr. Ney Elias, who in 1872 travelled across Mongolia obliquely from Kookookhoto or Kueiwhachang in the south-east to the Suok Pass leading into Asiatic Russia in the north-west. The Desert of Gobi he describes as consisting, in the part crossed by him, "of low hills or downs, with valleys and plains intervening, the whole of a rocky or stony nature rather than sandy, though patches of sand do occur every here and there. What little vegetation exists is chiefly composed of weeds, 'scrub,' and heath, there being scarcely any grass and only a dwarfed and stunted tree here and there in the gorges or passes of those low rocky ranges that, at uncertain intervals, cross the desert in almost parallel lines from east to west." Similar routes have subsequently been followed by the Russian travellers Sosnofsky (1875) and Col. Pevtsof (1878), and important observations on the orography of Mongolia have been made by another Russian, Potanin, who describes the eastern part of the range of mountains on the north of Mongolia as consisting of a continuous plateau without culminating peaks. In 1871 Prejevalsky explored the region in the neighbourhood of the Inshan and Alashan Mountains, and found it to consist for the most part of sandy desert without vegetation, without mammals of any kind, and without even birds, while in the remainder vegetation is scanty but highly interesting. In 1873 Eastern Mongolia was traversed from Kalgan on the great wall to the Argun by the Russian astronomer Fritzsche, who in the whole of his route north of about 43° passed, besides the Chinese town of Khailar and here and there a few Mongol tents (*yoorts*), only seven lamaseries or Lamaist monasteries, which appear to take the place of towns in many parts of Mongolia.

The bulk of the inhabitants of Mongolia belong to the race from whom the territory takes its name, the Mongols. To the eastern branch of this stock the Chinese originally gave the name of Tata (Tatars, or less properly Tartars), a name that has since been applied with great want of uniformity, and as often as not is used to designate the Turkish tribes instead of the true Mongols. The name of Mongols (Mungku) seems to have been first applied in the eighth century. Their original seat appears to have been that part of the northern fringe of Mongolia which lies between the Yablonoi and the Khinghan Mountains, and to this region they seem to have been still confined as late as the tenth century. They have now spread over the whole and even beyond its limits (into Siberia and elsewhere), and are divided into numerous tribes. The chief of those in Mongolia are the Khalkas in the north, the Urots north of the Hoangho, the Ordos on the right bank and the Olöts on the left bank of the same river, the last mentioned (who include the Kalmucks) extending beyond the western limits of the territory. Their chief physical characteristics are a round face, retreating forehead, prominent cheekbones, eyes somewhat oblique, black hair, and their whole frame strongly built but short and thickset. The northern Mongols are said to be good-humoured, peaceable, and honourable in their dealings, but rather boastful, those in the south, on the other hand, are taxed with some of the bad qualities of their Chinese neighbours, especially cupidity, cunning, and deceitfulness. In cunning, however, they are still no match for their teachers. The

women enjoy a tolerably independent position, and are very industrious. The language of the Mongols belongs to that class which combine words and syllables without inflections. The vocabulary is made up of native, Chinese, Turkish, and Tibetan elements. In religion, though still adhering to the practices of their original Shamanistic nature-worship, they are professors of Lamaism or Buddhism of the kind existing in Tibet, and the numerous lamaseries or monasteries are a great burden on the people. The principal lamaseries are presided over by abbots, who are regarded as incarnate divinities, and the Guisson-Tamba, who resides at Oorga, is worshipped like the Dalai Lama at Lhassa, his seat being visited by innumerable pilgrims from all the Buddhist regions of Eastern Asia. The Mongols are entirely nomadic, and live in tents which still answer exactly to the description given of them by Marco Polo.

The principal town in Mongolia is Oorga or Urga, called by the Mongols themselves Ta Kuren ("great inclosure"), already mentioned as the religious centre of Mongolia. It is also the residence of the two chief officers of the Mongol territory, one of whom is always a Mongol by birth the other a Manchoo. It is estimated to contain from 30,000 to 40,000 inhabitants, of whom perhaps 10,000 are Lamaist monks, while the rest are composed partly of Chinese traders, officials, and soldiers occupying fixed dwellings, partly of a shifting population living in tents. On the frontier, contiguous to the Russian town of Kiachta nearly due north of Oorga, is Maimachin an entirely Chinese town, the chief seat of the trade between China and Russia. West of Oorga lies Uliasutai, which is rather a fort than a town and contains about 4000 inhabitants, and still further west lies Kobdo, which consists partly of a fort occupied by Chinese troops, partly of a trading town, and contains in all a population of perhaps 6000. In the south-east of Mongolia is situated Kookookhoto or Kweiwhacheng, the second town in size in the whole territory, a place of considerable trade, being the terminus of the caravan routes to Western Mongolia (Uliasutai and Kobdo in the north-west and Urumtsi further south). Besides the trading town there is also, as at Kobdo, a military town occupied by Chinese troops, and there are said to be about 20,000 Lamaist monks in the various lamaseries of the place. The camel markets of the place are celebrated.

DZOONGARIA.

Dzoongaria or Songaria is the name of the region lying to the west of Mongolia and forming the north-westernmost section of the Chinese Empire. Formerly the province extended westwards to Lake Balkhash, but since the occupation of the Ili valley by the Russians it has its extreme western limit in about 80° E. lon. By the Chinese the province is called Thianshanpeloo, literally "the way north of the Thianshan." The territory within its present limits is very mountainous, being intersected in the north by branches of the Altai system and in the south by branches of the Thianshan. In the east it is crossed only by a ridge of moderate elevation, and the general slope is towards the west, on which side its two principal rivers the Irtish and the Emil escape into Russian

territory. The rearing of animals is the principal occupation of the inhabitants, large herds of horses, cattle, asses, sheep, and camels covering the pastures. Agriculture is confined to the tracts bordering the streams, but where it is carried on yields rich harvests of millet, wheat, and barley. With timber Dzoongaria is more abundantly supplied than most other parts of Central Asia. The inhabitants are mainly Kalmucks (Mongols) and Kirghiz (Turks), but among these are settled numerous Chinese military colonists with their families. In religion the Kalmucks are Buddhists, the Kirghiz Mohammedans. The residence of the Chinese governor is at Kurkara-ussu. The Chinese acquired possession of the province of Dzoongaria (including the Ili valley) in the second half of last century, at which time the province was under the sway of the Kalmucks. The western portion of this extensive territory has been in the hands of the Russians since the erection of the fort of Vernoye on a southern tributary of the Ili in 1854, and the upper part of the basin of the Ili, including the town of Kuldja, was also occupied by the Russians in 1871, in order to put a stop to the anarchy that then prevailed in that district in consequence of the insurrection of the Chinese Mohammedans in the west, by which both Dzoongaria and Eastern Turkestan were temporarily severed from the Chinese Empire. After the overthrow of the Mohammedan rebels negotiations were opened between China and Russia for the restoration of the latter district, and a treaty was concluded (in 1879) at St. Petersburg providing for the retrocession to China of the greater part of the district, but the retention by Russia of the southern portion, the valley of the Tekes. The carrying out of this treaty would have left the command of the passes over the Thianshan, which form the easiest means of communication between Northern and Central Asia, in the hands of the Russians, but the government at Peking refused to ratify the treaty, and another treaty in which Russia retroceded the entire territory except a small portion in the western part of it was concluded in 1881.

EASTERN TURKESTAN.

Eastern Turkestan, or *Thianshannanloo* ("the way south of the Thianshan") as it is called by the Chinese, is the territory bounded on the north by the Thianshan (or Celestial) Mountains, which separate it from Asiatic Russia, Dzoongaria, and Mongolia; west by the Kizil Yart Mountains crossing the table-land of Pamir; south by Tibet, from which it is partly separated by the Kuenlun Mountains. Inclosed on three sides by lofty mountain ranges (both the Thianshan and the Kuenlun Mountains having an endless succession of peaks approaching or exceeding 20,000 feet in height), and on the east by a less abruptly elevated plateau, the centre of the country is the basin of the Lob-nor, a lake first explored in modern times by Prejevalsky in 1877, and found by him to be an elliptical body of fresh water stretching from south-west to north-east and surrounded by a margin of salt marshes. The length of the lake is about 65 miles, the breadth about twelve. It is fed from the west by the Tarim, which gathers up as tributaries all the streams of the western portion of this territory. The breadth of

Eastern Turkestan in the Lob-nor region was found by Prejevalsky to be considerably less than had previously been supposed, a range of mountains called the Altyn Tagh, from 13,000 to 14,000 feet in height, here bounding it on the south between about lat. 38° and 39° N. The basin of the Tarim is to a large extent a sandy waste. It is in fact estimated that three-fourths of Eastern Turkestan is covered with deserts, and the portion of the surface adapted for culture is entirely situated around the declivities and bases of the mountains in the north, west, and south. In the west there is a very considerable fertile area, comprising the provinces of Kashgar, Yarkand, and Khotan, which are watered by the rivers Kashgar, Yarkand, and Karakash, these being taken advantage of for irrigation. The climate is characterized by great dryness and great extremes of heat and cold. In summer the dryness of the atmosphere and the radiation from the overheated surface of the ground make labour in the open air impossible. The mean temperature in the shade in August is 79° F. In winter the thermometer falls to −13°. In the desert violent storms of wind (from the north-west) are common in spring and autumn, and very destructive to caravans. The products of the country are various and abundant, including wheat, barley, maize, millet, and also rice; cotton in large quantities, flax, and hemp; opium, vegetables, and fruits, including figs and pomegranates. The silkworm is reared in the south, and the vine is trained on espaliers, and is protected by coverings in winter. Domestic animals include the yak, camel, horse, ass, sheep, and ox. The horse is small but very hardy. There are considerable beds of iron, copper, and lead ore and of alum, but the mineral wealth of the region is not yet utilized to any great extent. Excellent carpets and felt cloths are made, and are exported to India, Kashmír, and Tibet; coarse cottons are made for consumption in the interior. A considerable impetus was given to the trade of the territory by the concluding of a commercial treaty with Britain in 1873, during the period when Eastern Turkestan was independent of China. In the year following a Central Asiatic trading company was established with its seat at Lahore in the Panjáb, and by this company a caravan is despatched every second year to Kashgar, from which it returns with native productions in the following year.

The population is very heterogeneous, and in the towns the mixing of races has proceeded to such an extent that distinct races can hardly be recognized, and all that can be said is that the Mongol element appears to predominate. Turkish and Persian (Sart) elements are also unmistakably present in form and feature, and in some sections of the population one or other of these elements is often more prominent than the Mongolian. The settled inhabitants of the country districts are mainly Dungans or Tunganis, a race supposed to be descended from the Turkish tribe of the Uigurs, who, having first adopted the religion of Zoroaster and afterwards that of Buddha, early made considerable advances in civilization, and in the fifth century of our era possessed an alphabet and a literature. The Tunganis, however, if they are really descended from this race have again changed their religion, being now zealous Mohammedans, and in language and outward appearance they are now Chinese, though they regard the Chinese proper with detestation as heathens. Among other races in Eastern

Turkestan are Kirghiz and Kalmucks as nomads, and in the higher valleys of the south-west the remnants of an old Aryan race. The prevailing language is a dialect of Turkish spoken in several varieties, of which that spoken at Aksu in the north is regarded as the purest. The people are all Mohammedans, but in matters of religion most of the tribes are chiefly remarkable for their indifference. The food of the people is as various in its character as that of Europeans. Great quantities of flesh meat and fish are consumed.

The capital of Eastern Turkestan is Kashgar in the north-west, a place of about 50,000 inhabitants. The largest town, however, is Yarkand (about 80,000), on the river of the same name, about 120 miles to the south-east. It stands at

Merchants of Yarkand, Eastern Turkestan.

the height of about 3800 feet above sea-level, in so dry a situation that the houses have to be supplied with water by means of numerous canals from the river Yarkand. The town consists of two parts, the Chinese citadel called the Yanishar (new town), and the town proper. The streets, like those of the other towns in the same region, are dirty, and so narrow that vehicles cannot enter them. The inhabitants are described as good-humoured, honourable and industrious. Still further to the south-east is Khotan or Ilchi (40,000), a town greatly injured during the Mohammedan insurrection in Eastern Turkestan.

During the first half of last century Eastern Turkestan was subject to the Kalmucks in Dzoongaria, and with Dzoongaria it was conquered by the Chinese in the second half of the same century. Repeated disturbances took place in the country from about the middle of the present century, and at last in 1864 the inhabitants broke out into a general rebellion against the Chinese. After numerous successes the leader of this rebellion, Yakoob Beg, seemed to be firmly established as ruler in Kashgar, but in 1877 he was assassinated by one of his

own courtiers, and before the end of that year the Chinese, who had gradually been reconquering the revolted territory, had again made good their authority throughout Eastern Turkestan.

TIBET.

Tibet, or Thibet, is a country occupying the southern and highest portion of the great platform of Central Asia, lying between lon. 73° and 101° E., and lat. 27° and 36° N., and extending from the sources of the Indus to the frontiers of China, and from Hindustan to the Desert of Gobi. The highest portion of this platform, or rather series of plateaux, is in the west, in the region in which the Indus and Satlej have their origin, where the elevation approaches 15,000, and even in the lowest portion, in the south-east, the elevation is hardly less than 10,000 feet. Between these sections is a broad band "commencing westward of Lhassa and extending (with a sweep to the north) right up to the Chinese province of Kan-Su," in which "there is no single point at a less elevation than 12,000 feet above the sea." The mountains bounding these plateaux (including as they do the highest range in the world) have in many of their peaks twice the average elevation of the plateaux themselves. The ranges are generally parallel to those of the Himálaya, but on the east run north and south. Within the boundaries of Tibet are the sources of nearly all the great rivers of the south and east of Asia, the Indus, Satlej, Bráhmaputra (the Sanpu, which flows along the northern base of the Himálayas, being now identified with this river with tolerable certainty), Iráwadi, Mekong, Menam, Yangtsekiang, Hoangho, &c. Along the northern base of the Himálayas are numerous fresh-water lakes, further in the interior there are many lakes whose waters are salt.

CLIMATE AND PRODUCTIONS.—The chief peculiarities in the climate of Tibet are the excessive dryness of the atmosphere and the severity of the winters. From October to March so little moisture exists in the air, that vegetation is almost wholly dried up; meat and fish may be preserved fresh for all that time; and the cold is excessively intense. In general the vegetation, whether cultivated or uncultivated, is unimportant. Woods there are none. The wheat, pease, and barley, which grow on the plains, in many parts never ripen, and serve only as fodder for cattle when grass fails. Yet the pastures and fodder-crops afford sustenance to large numbers of domestic animals which form the chief wealth of the country. Among the most remarkable of these are the yak, horse, Cashmere goat, and sheep. Both the yak and goat are likewise found wild, the first in large herds on the higher steppes, and the other wild animals include a kind of wild horse called the jiggetai (*Equus hemionos*), the argali sheep, the musk deer, antelopes, wolves, jackals, and foxes. Birds are rare, singing birds entirely absent. The mineral productions include gold (along the southern base of the watershed of the Sanpu), cinnabar, lead, copper, iron, borax (found on the shores of the salt lakes), sulphur, cobalt, and rock-salt. Tibet is a country of extensive traffic, the principal trade being with China, which throws the greatest obstacles in the development of the trade with India.

In the convention of Chefoo, however, concluded between Britain and China in 1876, permission was granted for the sending of a British mission to Tibet, and it is expected that this will lead to the extension of the commerce between Tibet and British India. The chief centres of the trade are Lhassa and, in the west, Gartok. The caravans from China carry tea, silk goods, and other Chinese produce, which are exchanged for gold-dust, woollens, incense, Buddhist idols, and Indian and European goods. In the mountains the merchandise is carried on men's backs or slung at the ends of bamboo poles carried by men, but on the plateaux the yak is the universal means of transport, for which it is admirably adapted by its capacity of subsisting for days together on scarcely any food in the wild stony tracts that often intervene between different grazing grounds.

PEOPLE AND LANGUAGE.—The majority of the inhabitants are Bodpas or Tibetans proper, a people of Mongolian stock, mostly settled. In the north there are Kirghiz and other Turkish tribes, and also Mongols, and in the north-east, round the lake known as Kokonor, besides Mongols numerous Tanguts, a tribe closely allied to the Tibetans proper, and found not only here but also in the adjacent parts of China (province of Kansoo). The manners and mode of life of the inhabitants are rude: the houses of the peasants are merely piles of stone, with holes to let in air and light. The ordinary food of a Tibetan is oatmeal porridge and buttered tea. "Tibet," says Captain Gill, who travelled in the eastern part of the country in 1877, "may safely be called a land flowing with milk and butter; the enormous quantity of the latter consumed by a Tibetan is something startling—butter in his oatmeal porridge, and large lumps of butter in his tea." The language is monosyllabic, and has been a written language for more than 1200 years, during which period its form as a written language has remained unchanged, though the language has necessarily been modified as a spoken language. In consequence of this there is even less correspondence between form and sound than in English. A rude mode of printing, with immovable letters, has been introduced from China; the characters used are derived from the Sanskrit.

RELIGION.—The religion of Tibet is a form of Buddhism so debased and corrupt as to be in contradiction at almost every point with the doctrines of the founder of that system. (See CEYLON, Religion.) Buddhism was already greatly corrupted by admixture with Sivism, the grossest form of Hindu worship, when it was introduced into Tibet about the sixth century of our era; and other corruptions were subsequently superinduced, giving rise to the system known as Lamaism, of which Tibet is the headquarters, but which is the form of Buddhism generally professed in Central Asia. This system seems to have arisen in the fourteenth century, its founder being a monk of the name of Tsonkapa. Its leading tenet is that the supreme being, the Adibuddha, self-existent, infinite, and omniscient, a being whose existence is completely ignored, as we have seen, in Buddhism proper, is constantly represented on earth in human form by the Dalai Lama, the head of the Lamaist religion, who has his seat at Lhassa. When he dies his spirit is believed to pass into his successor, so that the Adibuddha is never without a representative to receive the worship of believers.

Alongside of him is another dignitary, the Panchen Lama, whose seat is at Tashi Lhunpo, about twenty-five miles from Lhassa, and who is regarded, like the Dalai Lama, as supreme within his own domain, but as this domain is incomparably smaller in extent than that of the Dalai Lama, the dignity of the latter remains unrivalled. Next in order to these two supreme lamas are the *khutuktus*, who occupy much the same position as cardinals in the Roman Catholic Church, and below the khutuktus are the *khubilkhans*, after whom follow the abbots of the numerous monasteries (lamaseries) which are scattered over the land, and which are found wherever Buddhism exists in any form. This hierarchical system is not the only point of resemblance between Lamaism and Roman Catholicism. Like the Roman Catholics the Lamaists have also auricular confession, intercession of saints, fasting and washing of the feet, litanies, lustral water, bells, and rosaries; in fact, so many things in organization and the externals of worship resembling what is found in the Roman Catholic Church as to suggest to the minds of the earliest Roman Catholic visitors to the region the explanation that the devil had a good deal to do with it, and to lead less hasty reasoners in subsequent times to surmise the operation of western influences in the development of the present form of Lamaism.

Of the moral element of Buddhism, that which may be said to constitute almost the whole of Buddhism proper, Lamaism shows hardly a trace; and nothing could be imagined in more glaring contrast to the spirit of that system than some of the grossly superstitious practices of which Tibet is the home. It is here that the praying-wheel, a machine filled with prayers, charms, or passages from holy books, and supposed to bring down blessings on the people when made to revolve even by the wind or the current of a stream, seems to have been invented; and, though it is now found in other parts of Northern Asia to which Buddhism has spread (even in Japan), nowhere except in Tibet is it to be seen in every open place in the towns and villages, by every footpath, and in every stream. Quite as numerous are the "trees of the law," lofty flag-staffs bearing pennons on which some sacred words are inscribed, and which are believed to have the effect of a prayer whenever the wind blows them open so as to turn the sacred words towards heaven. Nor are the priests or lamas fitted as a class to improve the moral ideas of the people, but the very reverse. They live themselves in immorality and idleness, and are described by Captain Gill as "a curse to the country and the people; by usury getting possession of, or establishing a lien on not only nearly all the property, but even the manhood also of the country; living in communities of thousands, issuing forth only for their own amusements or the indulgence of their profligate tastes."

HISTORY AND GOVERNMENT.—The history of Tibet is of little interest. It continued to be governed by its own princes till the commencement of the last century. Some internal troubles having occurred in 1720, the Chinese seized the opportunity to obtain an ascendency in the country, which, since that time, has been on the increase. A Chinese functionary is always stationed at the residence of the Grand Lama, who is the political as well as the religious head of the state, and who transmits information to, and receives instructions

from Peking. There is also a Chinese governor with a military force stationed in each of the principal towns. The only town of any size is the capital, which is estimated to have a population of about 30,000, one-third of these being lamas. It stands on a tributary of the Sanpu, at the height of about 11,000 feet above sea-level.

COREA.

Corea is a kingdom of Asia, consisting chiefly of a peninsula in the north-east of China, and, though it pays tribute to China, is otherwise independent. It is called by the natives *Tsiotsien;* by the Chinese, *Kaoli;* and by the Japanese *Korai*, whence its European name.

From Manchooria the Corean territory is separated by the wild and densely wooded range of Shanalin, which runs from south-west to north-east and forms an ethnographical as well as a political frontier. From this range another strikes off near the eastern extremity and proceeds south-eastwards, abrupt and precipitous on the east, but forming a gentle slope on the west side, which being watered by the principal rivers of the country, is exceedingly fertile. The strip on the west adjoining the Chinese territory, a strip of about 4500 square miles in extent formerly regarded as neutral and left without inhabitants, is now incorporated with Corea, and, according to the report of one who passed through it in 1878, is being rapidly sprinkled with human habitations and brought under cultivation. In the north of Corea the only grain that can be grown is barley; but in the south the soil is fertile, and wheat, cotton, rice, millet, legumes, and hemp are grown extensively. The rice is inferior to that of Japan, but cultivated with much assiduity, and under considerable disadvantages from the hilly nature of the country. A decoction of pinang, a kind of walnut, is substituted for tea. The ginseng root is a production of Corea greatly valued in China and Japan, where high prices are given for it. Among trees the most important is the *Rhus vernicifera*, from which lacquer is obtained, and which grows abundantly in Japan also. The domestic animals are oxen, pigs, goats, dogs, and cats, and a small race of horses, very strong and spirited, called mon-k-wat. Oxen only are used for agricultural labours, the horse being reserved expressly for the saddle. Stags, hares, foxes, wolves, and sables are abundant; and the skins of the sables form a prominent article of tribute. The royal tiger and panther are so numerous that their skins form an article of commerce with foreigners. The minerals include iron and lead in considerable quantities, and besides these, according to report, gold, silver, and copper. The manufactures of Corea are, generally speaking, coarse. They comprise strong fabrics of hemp, cotton, and grass; silk in considerable quantity, but not very fine; pottery and porcelain, sometimes of monstrous size; excellent arms—Corean sabres and poniards being much sought after by the Chinese. Paper is an important object of manufacture, entering, as it does in Corea, into the construction of numerous articles. This commodity together with lead and silk as well as the skins of wild beasts form the principal exports. The trade is likely to be greatly promoted by the commercial treaty concluded with Japan in 1876, according to which ten ports in Japan were

to be opened to the Coreans from January, 1878. The inhabitants have a Mongolian cast of countenance, but resemble the Japanese more closely than the Chinese. The men are tall, strong, and of dignified bearing, less arrogant and more friendly in their behaviour towards foreigners than the Chinese, thrifty, industrious, and intelligent. Several thousands of Coreans, in order to escape from the severity of the government in their own country, have settled on Russian territory since the two countries became contiguous to one another (in 1859), and they have proved to be excellent agriculturists and good subjects. The language contains a large admixture of Chinese. It is written with an alphabet of 168 signs. The literature is very old and rich, and there is said to be a large library at the court. The prevailing religion is Buddhism, although the doctrines of Confucius are also held in great respect. Corea is governed by a king, whose sway is absolute, and, though tributary to China, his freedom of action seems quite uncontrolled. The revenue is derived from tithes of all the products of sea and land, and is paid in kind. The capital is Hanyang on the north-west coast, a town surrounded with high thick walls, but in the interior ill-built.

JAPAN.

Japan, called by the natives *Niphon* or *Nipon* ("Sunrise" or "the East"), is an empire in the east of Asia consisting of a series of large islands surrounded by innumerable small ones, stretching in a curve between the island of Sakhalin and the Peninsula of Corea, together with the Kurile Islands in the north, the Loochoo Islands in the south, and the small group of the Bonin Islands between the main group and the Ladrones. The northern members of the Loochoo group have been in the possession of Japan for nearly three hundred years, but the remainder formed a separate principality paying tribute to both China and Japan till 1874, when it was completely incorporated with the Japanese Empire. The Kurile Islands, which have only a small sprinkling of inhabitants, were only partly in Japanese possession till 1875, when by a treaty with Russia

	Area in sq. miles.	Population in 1876.	Pop. per sq. mile.
Niphon or Nipon, ...	86,773	26,067,666	300
Kiusiu, ...	14,956	5,049,779	337
Sikoku, ...	7,036	2,539,103	361
Smaller adjacent islands, ...	1,002	364,730	364
Yesso or Yezo, ...	30,282	149,554	5
Kurile Islands,[1]	5,724		?
Loochoo (Japanese, Riukiu) Islands,	808	167,572	207
Bonin Islands, ...	32	75	2
	146,613	34,338,479	235

[1] Before the entire cession of the Kurile Islands to Japan, their population was estimated at between 200 and 300, but after the cession all but a few of the inhabitants removed to Russian territory (Sakhalin).

they were all handed over to Japan in return for the renunciation by that power of its claims to part of Sakhalin. The Bonin Islands, on which there is a small settlement of Europeans and Hawaians, who support themselves chiefly by supplying the wants of the whale-fishers of the Pacific, and on which the United States government has formed a whaling station, were taken possession of by the Japanese in 1876. The table on the preceding page gives the area and population of each of the larger islands as well as of the groups of smaller islands. The area of Niphon, the largest island, it will be useful to remember, is nearly equal to that of Great Britain with the smaller adjacent islands (in round numbers 90,000 square miles), from which it will be seen that Yesso is about one-third, Kiusiu one-sixth, and Sikoku one-twelfth of that area.

PHYSICAL FEATURES.—The largest island, Niphon or Nipon (or more properly Honshiu, which is the Japanese name of the island itself as distinguished from the whole empire), is about 800 miles long, and has a breadth varying from 50 to 100 miles; Kiusiu, separated from Niphon by the Kino Channel, which in one part is narrowed to 2 miles width, is about 200 miles long north to south and 120 miles broad; Sikoku, the third and smallest of the three principal islands, lying between Kiusiu and Niphon, is 140 miles long by 60 miles broad. The straits separating it from Niphon are so thickly set with small islands that the passage is frequently not more than a mile wide. Yesso or Yezo is of very irregular form. Its extreme length from north to south is about 250 miles. The coasts of the larger islands are extremely irregular, being deeply indented with gulfs, bays, and inlets, which form magnificent harbours. They are in many places bounded by cliffs and fringed with sunken rocks, which makes the navigation dangerous, especially since the flow of the currents also is unfavourable to shipping. In recent years these dangers have been reduced by the erection of lighthouses and beacons both on sea and land. The surface is generally uneven, and in many instances rises into mountains of great elevation. This is especially the case in the Island of Niphon, which is traversed throughout its whole length by a regular chain of mountains, the highest peak of which, Fusiyama (Rich Scholar Peak)—a dormant volcano, covered with perpetual snow—is 12,230 feet high; but the elevation of the range is in many parts so low as to admit of cultivation up to the water-shed of its streams. The streams are nearly all insignificant in size, impetuous in their course, and very variable in the amount of water they contain. Though valueless as channels for the development of commerce they are of great value for the purposes of irrigation. There are a number of lakes scattered throughout the islands, the largest being Biwano-Oumi, in the southern part of Niphon, about 40 miles long. The Japanese Islands form a part of a line of volcanic action commencing in the north with the Aleutian Isles, and terminating in the islands of south-eastern Asia. The volcanic vents which indicate the direction of the line, are numerous in Yesso, Niphon, and Kiusiu. Earthquake shocks are so frequent that a seismological society has been founded for collecting observations of such phenomena. Yedo is stated to be liable to from 60 to 100 shocks a year. Sometimes they cause great devastation. One in 1783 destroyed twenty-three villages; and

the volcano of Wunzendake, one of five active in the Island of Kiusiu, is the terror of the surrounding inhabitants, an eruption of it in 1792 having destroyed 53,000 people. All the other Japanese islands besides those belonging to Japan proper, that is, the Loochoo, Kurile, and Bonin Islands, are volcanic in their character. The first have several vents still active.

CLIMATE.—The climate of Japan, though extremely various—being intensely cold in the north and about as warm as the south of France in the south—is, on the whole, like the rest of eastern Asia, much colder than the corresponding latitudes in the west of the Old World (those of southern France, Spain, and Morocco), but owing to the influence of the surrounding ocean is less extreme both in heat and cold than the neighbouring parts of the mainland. A remarkable difference of climate exists also between the east and west shores; the cold being more intense in the latter than the former, owing to the proximity of the Asiatic continent; while the east coasts are protected from the cold continental winds by the lofty central ridge of mountains that traverses the islands north to south. But even on the west side as far north as 38½° there is no period of continuous intense cold, while there is continuous summer heat with refreshing rain, and a temperately warm autumn. For all parts of the main islands below about the latitude above indicated the alternation of the seasons is as follows. From March to the second half of May a splendid spring prevails; from June to September summer extends, introduced by heavy rains followed by intense heat; from September to the end of November there is a brilliant autumn; and three months of winter succeed, rendered not unpleasant by the continued serenity of the sky. On the west side, about the latitude of Niigata (37½°), snow falls in early winter to a depth of from 4 to 8 feet, but this forms an admirable protection for the vegetation against the severer colds of midwinter. Rain is very frequent; hurricanes and water-spouts also occur often, and typhoons and equinoctial gales frequently sweep the seas about the change of the monsoons. In the Loochoo group the climate is very pleasant, the excessive heat that might be expected in the latitude to which these islands belong being moderated by the sea-breezes.

VEGETATION.—The vegetation of the Japanese islands is exceedingly various, the products of the tropics being intermingled with those of the temperate and frigid zones. There is a great wealth of flowering plants, and among the natives of Japan are many of the principal ornaments of our tables and conservatories, the camellia being one of the number. Among trees the palm, banana, bamboo, paulownia, and myrtle flourish in the south; while in the north, more especially in the island of Yesso, oaks and pines abound. The finest of the native Japanese trees are the evergreen oak and the maple. The camphor-tree, the varnish-tree (*Rhus vernicifera*), the wax-tree (*Rhus succedanea*), and the *kadsi*, or paper-tree, a species of mulberry, are also native, and all yield important commercial products. Fruit-trees do not thrive well owing to the attacks of insects. The soil of Japan is naturally indifferent; but the patient industry of the agriculturists, favoured by the genial climate, has covered with vegetation every spot capable of bearing anything. In the south the sugar-cane

is cultivated with success; and rice yields two harvests, and constitutes the chief article of food. Wheat and barley, various kinds of millet, and also spelt and buckwheat, are likewise cultivated, and melons, pumpkins, and cucumbers are grown in great abundance. Ginger, pepper, cotton (short-stapled), and tobacco are cultivated in considerable quantities; and there are extensive plantations of the tea-plant even as high as 39° N., yielding, however, a produce inferior to that of China. The best is that of Osaka. Wine is little grown, but the rearing of silkworms, formerly regarded with disfavour by the feudal proprietors of the soil, has within the last thirty years developed to such an extent that the products of this industry form from forty to fifty per cent of the total exports of the country. The cultivation of pod-fruits (beans, pease, and various species of Dolichos) and vegetables (cabbage, spinach, lettuce, onions, turnips, the *Solanum æthiopicum* or scarlet egg-plant, and the sweet-potato) is remarkably extensive. The common potato is little grown and slightly esteemed. The lowlands of the Loochoos are fruitful and well cultivated, producing sugar-cane (which furnishes the chief export), rice, maize, wheat, tea, cotton, and fruits of the finest description. On the Bonin Islands are magnificent woods containing a singular mixture of trees belonging to the tropical and temperate zones.

ZOOLOGY.—Buffaloes and zebus are common; but they are used only for carrying burdens and for agricultural purposes. Horses of various breeds—and, though small, said to be very excellent—are numerous. There are neither asses, mules, elephants, nor camels, and sheep and pigs are few. In consequence of the general cultivation of the soil the wild animals are necessarily few in number; but a small kind of deer, a species of antelope, a species of ape, wolves, hares, foxes, and wild boars are still found. Dogs are common, and are held sacred; but though cats exist in thousands, the country is said to be overrun with rats and mice. There is a great variety of birds, including falcons, which are much esteemed; pheasants, of which there are two kinds, ducks, geese, teal, storks, pigeons, ravens, larks, pelicans, cranes, herons, &c. Snakes are not infrequent; one species, the *ourabami*, attains an enormous size. There are also tortoises, lizards (including the giant lizard—*Sieboldia maxima* or *Cryptobranchus japonicus*—growing to the length of at least four feet), scorpions, and centipedes; and of the insect tribes there are white-ants, winged grasshoppers, and several beautiful varieties of moths. The seas and rivers abound in fish, and the fisheries of Yesso are, according to Miss Bird, authoress of *Unbeaten Tracks in Japan*, "one of the sights of Japan. Some of the seines are 4000 feet in length, and require seventy men to work them; a pair of such, making three hauls a day, sometimes catch 20,000 salmon, averaging when cured ten pounds each." Another writer acquainted with this region (Capt. St. John Wild) mentions that from a part of this river 6000 tons of salmon are caught annually; and, according to the reports of the natives, when the first rush of the salmon in ascending the river takes place over the bar at high tide, the water rises along the river banks.

MINERALS.—Of the minerals of Japan petroleum, iron, copper, and coal are those which have so far been turned to most account. Abundant petroleum springs exist in the valley of Niigata on the west coast of Niphon, and a company

under the management of Europeans has been formed for working them. The richest iron-mines are to be found on the Island of Yesso, and there also are coal-fields of great extent, producing coal of fair quality. The first export of coal from this field to Shanghai took place in 1872. Copper, obtained principally from the Kusagura mines in West Niphon, is a government monopoly. The other minerals include antimony, lead, tin, quicksilver, and gold, but the beds in which they are found have not yet been sufficiently explored. Everywhere mining is carried on in a very primitive fashion. No machines are used, and the miners are even unacquainted with the wheel-barrow. Mineral wells are numerous. That of Amianosta is much frequented by the court.

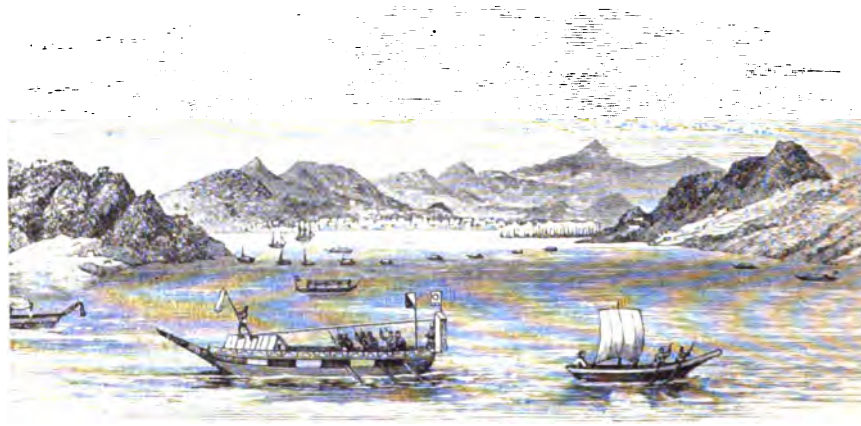
MANUFACTURES.—In manufacturing industry and ingenuity the Japanese are at least equal to the Chinese. Their silk manufactures have a world-wide

Forts at Yedo.

celebrity, and their skill in applying a durable lacquer varnish to the surface of wood and metal is so great as to have given a name to that art (japanning). Specimens of this kind of work are produced in Japan far surpassing, in brilliancy and splendour, any that are produced elsewhere. The Japanese porcelain is superior in respect of form and decoration even to that of China, and at least equal to it in quality. Their works in copper, iron, and steel bear a high character. Good telescopes, thermometers, watches, and clocks are made at Nagasaki. Lithochrome-printing has been long practised, and though the laws of perspective are not well understood, the outlines of animals and other figures are drawn with much truth and spirit. Good paper is made from the bark of the mulberry and other trees, and cordage from the fibres, and is applied to an extraordinary variety of uses. Japanese arms, and articles in glass and marble, are excellent both in form and material, and their decorative furniture and bronze ornaments have been much imitated in Europe. In all the international exhibitions since 1862 Japanese industry has been well represented, and its products have a prominent place assigned to them in all industrial museums. Within the last few years numerous manufactories on the European model have been

established either directly by the government or under government auspices, for the manufacture of woollen cloth, cottons, paper and glass, the preparation of indigo, the refining of petroleum, &c. Most of these are in the hands of Englishmen or Americans, and they are all furnished with European machinery.

COMMERCE AND COMMUNICATIONS.—Foreign commerce was long rigidly limited to the Chinese and Dutch; but by treaties into which the Japanese government was reluctantly induced to enter in 1854 and subsequently, five ports have been opened to foreigners, and an extensive commerce established. These are Hakodade in the south of Yesso, Hiogo and Osaka (forming one port) in the south of Niphon, Kanagawa (Yokohama) on the east of Niphon, the port of the capital Tokiyo or Yedo, Nagasaki in the south of Kiusiu, and Niigata on the



Harbour and City of Nagasaki.

west coast of Niphon. Raw silk and silkworms' eggs, tea, and copper are the staple exports, and the principal imports are cottons and woollens, rice and sugar, and metals. The value of the foreign trade is steadily increasing, but has not yet reached any great amount, being less than that of the foreign trade of a single fifth or sixth rate British port, such as Glasgow or even Leith. The trade is to a large extent in the hands of foreigners (Americans, Europeans, and Chinese), and so also is the shipping even in home waters; but the Japanese are excellent seamen and have already brought a considerable part of the coasting navigation into their own hands, as well as a smaller share of the trans-marine navigation. A native shipping company has existed since 1865, and now possesses a large number of steamers.

The internal trade of Japan is greatly hindered by the deficiency of internal communications. The roads are almost uniformly bad, and, except in two or three of the chief cities, the only wheeled vehicle in use is a small kind called a *kuruma* drawn by men. In the main island a great obstacle to communication between the different sides of the island is presented by the range of mountains that traverses it longitudinally; and, though so low in many parts as to admit,

as we have seen, of cultivation to the very top, this range proves so effectual a barrier to communication that the produce of the fertile districts of the west coast has to make the circuit of half the island to reach the ports and markets of the east coast. The Japanese have not, however, shown themselves so averse as the Chinese to the remedying of this defect by the laying of railways. About a hundred miles were already open for traffic in 1879, and about 500 more were then either under construction or sanctioned by the government, so that when all these are completed Japan will have about one mile of railway for every 180 square miles of surface in the three southern and most populous islands. The post-office, established on European models in 1871, carried in 1878 more than two letters for every three persons besides nearly a half that number of post-cards. The empire is connected by telegraph with Europe; the chief towns within the empire have been connected by telegraph for some years, and in 1880 all the main islands, including the Loochoo group, were brought into connection by submarine cables.

MONEY, WEIGHTS, AND MEASURES.—Since 1870 the Japanese have had a new coinage made in the country, the former coins having been made out of the country. The new coinage consists of 10, 5, and 2½ dollar pieces in gold, the dollar being the Mexican (= 4*s.* to 4*s.* 6*d.*), and of dollar pieces, 50, 20, and 5 cent pieces in silver, besides copper cent, half cent, and mil pieces. There is also a paper currency. The principal weights are the *picul* = 133⅓ lbs. avoirdupois, and the *kinn* = 1⅓ lb. Measures of length: the *shaku* = 10 *sun* = 11¾ inches, the *ri* = 36 *cho* = 2½ miles. "It is stated," says the *Statesman's Year-book for 1880*, "to be the intention of the government to introduce into Japan at an early period a new system of weights and measures, based on the decimal system of France."

PEOPLE, LANGUAGE, AND EDUCATION.—The affinities of the Japanese people have not yet been settled by ethnologists, although numerous theories on the subject have been defended by different authorities. It seems to be generally agreed that they do not represent the original inhabitants of the islands, but immigrated from the Asiatic continent, gradually driving out (or in part becoming mingled with) the aboriginal population, which is believed to be still represented by the Ainos of Yesso. They are distinguished by broad skulls and high cheek bones; small black eyes, obliquely set; long black hair, and a yellow or light-olive complexion. Some are good-looking, and many are well-made, active, and nimble. Their principal moral characteristics are perseverance, courage, and frankness; the lower classes exhibiting also much good humour, gentleness of demeanour, and courtesy of manner, qualities with which the military or official caste is not credited. But most of those who have an intimate acquaintance with the Japanese character seem to be agreed that beneath this fair exterior are hidden other qualities of a less commendable nature, notably lying and licentiousness. The position of women is a low one, and presents a serious obstacle to any genuine advance in the social life of the people, in spite of the eagerness which the Japanese government has shown of late years to introduce among the people the externals of European civilization. Polygamy is not practised,

although the moral code of the Japanese is not otherwise, by any means, particularly rigid, various laxities being indulged in without scandal. Men can divorce their wives at pleasure, and it is even asserted that 60 per cent of Japanese marriages end in divorce. The inhabitants of the Loochoo Islands are closely allied to the Japanese. The Japanese dress consists of loose garments of silk or cotton gathered in at the waist and fastened by a girdle, the men of the higher orders wearing a kind of petticoat-trousers. Formerly the higher orders wore two swords, but the wearing of swords except by the military is now prohibited. Among the higher classes, indeed, European fashions are being rapidly adopted both by men and women, and the emperor and empress set the example in so doing. The Ainos found in the interior of Yesso (as well as in the south of Sakhalin, not to mention the Kurile Islands, where the population is trifling) are a race whose affinities are quite as doubtful as those of the Japanese. Their total number is not estimated to exceed 60,000. They are of middle height, thick-set, and strongly built, and dark olive in colour; their forehead is high, broad, and prominent, ears small and set low, nose straight but short, mouth large but well-formed, hair stiff and curly, and beard long. But perhaps their most striking physical feature is their extreme hirsuteness. In many cases the bodies, and still more frequently the legs and arms, are covered with short bristly hair. "I have seen," says Miss Bird, who stayed three weeks among them, "two boys whose backs are covered with fur as fine and soft as that of a cat." The Ainos tattoo their faces above and below the mouth, and also the backs of their hands and their arms up to the elbow. They "have low, sweet, musical voices, sad, gentle eyes, and winning, courteous ways." They are very affectionate in their behaviour towards their children, who in turn treat their parents with ceremonious respect. Their dwellings are simple, and "not dirtier than those of the Japanese peasantry in the less fertile districts." The Japanese language is agglutinative, that is, has permanent distinctly recognizable roots, along with the power of forming compounds and derivatives. In its syntax it presents striking points of resemblance to that of the Manchoos, though these are not sufficient to warrant without further evidence the conclusion of a near affinity between the two languages. It exists in various dialects, and that which is regarded as pure Japanese is a remarkably musical tongue not difficult of acquisition; but since the

Japanese Country People.

fifteenth century this form of the language has been more and more displaced in ordinary use by another dialect by no means so agreeable to the ear or so easy to learn, and containing a large admixture of Chinese words. But even this dialect is much more easy to acquire orally than as a written language, as great difficulties are presented by the Japanese mode of writing. Two systems of writing are in use, one of which is comparatively simple, involving the use of only forty-eight signs standing for the fundamental syllables of the language, together with a final *n*; and the other, imitated from the Chinese, involving the use of thousands of characters. The latter unfortunately is the system in general use, and to make much way in Japanese literature one must be master of at least 1500 characters, while a knowledge of not less than 5000 signs is necessary to enable one to read books using a technical terminology. The oldest remains of Japanese literature carry us back to the beginning of the eighth century of our era. Formerly a large proportion of the literary productions of the Japanese had, as in China, more or less of an encyclopædic character, a voluminous encyclopædia being regarded as the most important and meritorious of literary performances; but nowadays the influence of the West is to be seen in the increasing number of smaller text-books produced by the Japanese, not to mention the translations and direct imitations of European and American works. It is significant of the nature of the influence that contact with western nations is exercising upon the Japanese mind, that translations of Mill, Spencer, and Darwin are common in the booksellers' shops of Japan. The *Origin of Species* is said to have a specially large sale. Japanese newspapers have been brought into existence and are rapidly increasing in number.

Japanese Town's People.

The last-mentioned facts may serve to some extent as an index of the state of education, at least in the larger towns, but in country districts the people are said to remain still densely ignorant. Vigorous efforts are now being made, however, by the government to advance education not only among the upper classes but among the general body of the people. Provision is made for sending out a number of students every year at the public expense to receive higher instruction in the schools and colleges of Europe and America, and the great are called upon by royal decree to take the same means for securing a superior education for their children. In 1872 a comprehensive scheme of education for the whole empire was adopted, and a beginning was made with carrying it into

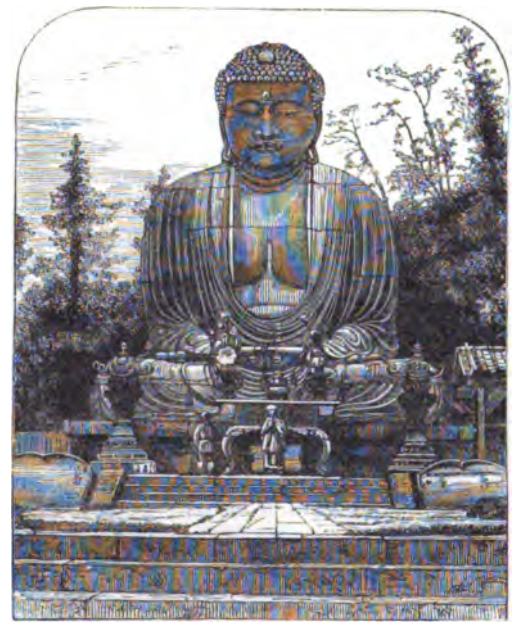
effect. The empire is divided by this scheme into eight school districts, in each of which there is to be a high-school with thirty-two middle-schools and the requisite number of elementary schools. A commendable feature of the system, when contrasted with the general practice of the East, is that girls go to school as well as boys; and it may be mentioned as another sign of the attention given in Japan to the promotion of female education, that in 1875 a seminary for female teachers was formally opened by the empress at Tokiyo.

RELIGION.—The strictly national religion of the Japanese is Shintoism (from *shin*, "god" or "spirit," and *to*, "way" or "law"). In its origin this is a form of nature-worship, the forces of nature being regarded as gods, the sun being the supreme god. According to the Japanese belief the *kami* or soul of the sun-god once lived upon earth and founded the reigning house in Japan (which is actually the oldest family of princes in the world), and hence the emperor is worshipped as of divine origin. Worship is also paid to the *kamis* or souls of deceased persons who earned the reputation of saints, as well as to the numerous deities of the Shinto pantheon. The priests of the system are in general regarded by the people with a good deal of dread, and are treated with a great show of deference out of fear lest they should revenge themselves for any slight or injury by the use of charms and other species of sorcery. At the last census they numbered with their families little more than a hundred. The temples are remarkably plain, and the number of worshippers for the most part small. The national worship has, in fact, to a large extent given place to Buddhism, though the government has recently, out of regard to the tendency it has to secure respect for the authority of the emperor and hence to preserve the unity of the empire, made it once more the official religion. Of this official Shintoism the three fundamental commandments, as promulgated by the government in 1872, are as follows:—

> "Thou shalt honour the Gods and love thy country.
> Thou shalt clearly understand the principle of heaven and the duty of Man.
> Thou shalt revere the Emperor and obey the will of his court."

Buddhism was introduced into Japan from China in the sixth century of our era, and is now professed by the majority of the population. But, as in China, Buddhism is not looked upon as incompatible with the profession of other systems, "and the Japanese generally," says a writer in the *Quarterly*, "appear to have viewed the 'way of Buddha' and 'the way of the Gods' as equally certain paths to happiness and to heaven." The form in which Buddhism prevails is a very corrupt one. The worship connected with it is carried on in gorgeous temples, presenting a striking contrast to those of the national religion, and is burdened with an elaborate ritual. On a feast day the scene in one of these temples, as described by Miss Bird, is picturesque and animated, though little marked by tokens of religious feeling. "Crowds on clattering clogs pass in and out, pigeons, of which hundreds live in the porch, fly over your head, and the whirring of their wings mingles with the tinkling of bells, the beating of drums and gongs, the high-pitched drone of the priests, the

low murmur of prayers, the rippling laughter of girls, the harsh voices of men, and the general buzz of a multitude. There is very much that is highly grotesque at first sight. Men squat on the floor selling amulets, rosaries, printed prayers, incense-sticks, and other wares. *Ex votos* of all kinds hang on the wall and on the great round pillars. . . . Most of the prayers were offered rapidly, a mere momentary interlude in the gurgle of careless talk, and without a pretence of reverence; but some of the petitioners obviously brought real woes in simple 'faith.' I specially noticed two men in stylish European clothes, who prostrated themselves over and over again; and remained before the altar several minutes, offering low-voiced prayers, with closed eyes and every sign of genuine earnestness, and several women in obvious distress, probably about sick persons." The number of Buddhist priests at last census was upwards of 66,000.



Colossal Bronze Image of Buddha, near Yokohama.

Many persons belonging to the more cultivated classes in Japan are adherents of Confucianism, and the doctrines of Taoism have also found followers in the country. Christianity, which was introduced by Roman Catholic missionaries in the sixteenth century, but was rooted out by fire and sword before it was a century old, is once more tolerated since the re-opening of the land to foreigners. The decrees prohibiting it were first repealed on the 23d of April, 1872. The open ports are now likewise mission stations, but the missionaries are not regarded with much favour and converts are few. Nevertheless "a prodigious number" of copies of translations of the New Testament are now said to be in circulation. The most successful missions hitherto are those of the Greek Church carried on by Russians. Already these have three congregations in the islands—at Tokiyo and Sendai in Niphon and Hakodade in Yesso.

GOVERNMENT AND DEFENCE, &c.—The government of Japan is a hereditary absolute monarchy, vested in the *mikado*. This was the ancient form; but in 1585 the emperor's commander-in-chief usurped the governing power, and for nearly three centuries reduced the mikado to a secondary position. The latter resided in the royal and sacred city of Miako (or Kiyoto), where he was kept secluded, under the guise of a mysterious sanctity, while the *shogun*, living at Yedo, exercised imperial authority, and was regarded, by foreigners at least, as

a second and supreme sovereign. In 1868, however, a revolution overthrew the power and office of the shogun—he had been usually, but erroneously, called by a Chinese title, *tycoon*—and the mikado was restored to his ancient supremacy. The mikado is religiously regarded by the people as the source of all power and property, and there is no single thing existing in the land which is not regarded as really the emperor's. Under the influence of this principle a marvellous national movement took place; the *daimios*, or territorial princes, who, under the shoguns, exercised almost absolute sway within their territories, were obliged to surrender their lands and titles to the mikado in return for an annual allowance payable by the state, but which, by a law passed in 1876, they have been required to commute for a single payment. The *samurai*, who were the military and civil officers of the daimios, and numbered in all nearly 2,000,000, were deprived of their posts, and offices under government thrown open to members of all classes. The result was a rebellion of the samurai in the south, but in September, 1877, the rebellion was quelled, and since that date the government may be regarded as securely established on its new basis. The mikado is absolute ruler in both temporal and spiritual affairs. He acts through an executive ministry, consisting of eleven departments. There are also two deliberative assemblies: (1), the *Genroïn*, first called together in 1875, consisting of members nominated by the mikado on the proposal of the ministry from among those who have held some office of state and have otherwise distinguished themselves; and (2), the *Chikuhokuankuaigi*, or assembly of the heads of provinces. The first-mentioned body holds regular sessions and discusses the projects of law submitted to its consideration, but is not allowed to draw up any such projects itself. It likewise receives petitions. The latter body meets on the summons of the mikado to deliberate on measures affecting the interior administration. The Island of Yesso is governed as a kind of colonial possession. The chief source of revenue is the land-tax. By the law of 28th December, 1872, military service is obligatory on all, but substitution is allowed. The period of service is three years. The force is drilled by French officers. The navy now includes several ironclads.

CHIEF TOWNS.—The principal towns in Japan have as a rule an agreeable appearance. They are for the most part regularly built, their streets crossing one another at right angles, and attention is given to keeping them clean. In proportion to the population they cover a wide extent of surface, owing to the fact that, in order to reduce the danger of damage by earthquakes, the houses are mostly of only one story, or at most of two (in which case the upper story is used only as a store), and that almost every house is surrounded by a garden. The ordinary materials of which they are constructed are wood (bamboo) and cement, which exposes the cities to great danger by fire. In consequence of this the government has ordered bricks to be used in the rebuilding of all quarters that have been burned down. In the interior the houses have no fixed partitions, standing screens, covered with painted paper, being considered sufficient to shut off particular portions as rooms as may be required. Furniture there is none. The inmates sit on their heels, and sleep on the floor.

The present capital and the largest town of Japan is Tokiyo or Yedo, the mikado having removed thither from Kiyoto after the revolution of 1868. It is situated at the head of a bay on the east side of the main island, and in 1879 had a population of 812,000. The locality is very liable to be disturbed by earthquakes, and a very violent one was experienced in December, 1879. In 1872 gas was introduced into the town, and in the same year Tokiyo was connected by rail with its port Yokohama. The police stations are connected by telegraph, fire brigades have been established, and several large parks have been formed out of confiscated lands of the nobility. Yokohama (67,000) and Kanagawa (108,000), on opposite sides of a small bay affording good anchorage on the west side of the Bay of Yedo, form together the port of Tokiyo and the principal port in Japan. Kanagawa was the place named in the treaty as to be opened to foreigners, but in 1859 the mercantile establishments were transferred to Yokohama on account of the defectiveness of the harbour of Kanagawa. Osaka (284,000), at the head of a bay opening off the channel separating Niphon from Sikoku, is the second town in Japan in respect of population. It has long been the principal centre of the internal trade of Japan, and it is now, along with Hiogo (30,000), on the opposite side of the bay, one of the treaty ports open to foreigners. A bar at the mouth of its harbour prevents the entrance of large vessels, but Hiogo is free from this inconvenience. About 30 miles to the north is Miako or Kiyoto (230,000), the third largest town in Japan, and formerly, as already mentioned, the residence of the mikado. Kagoshima in the south-east of Kiusiu is the next town in size. Its population is estimated at 200,000, but was not definitely ascertained at the last census of Japan, seeing that this region was then disturbed by rebellion. The only other towns with a population exceeding 100,000 (eight in all) are Nagoya (136,000), east of Kiyoto near the head of Owari Bay on the east of Niphon, and Hakodade (113,000) in the south of Yesso.

Street in Hakodade.

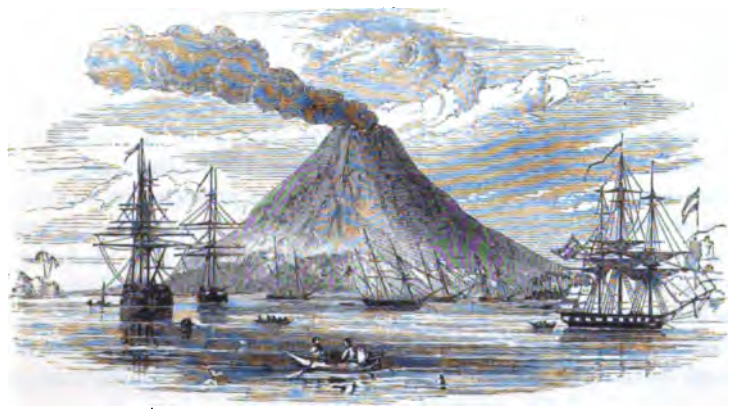
THE EASTERN ARCHIPELAGO.

The Eastern Archipelago is the name usually given to the group of large and small islands lying to the south-east of the Asiatic continent between the Pacific and Indian Oceans and to the north and west of Australia and New Guinea. They are subdivided into the smaller groups of the Philippine and Sulu Islands, the Greater and Lesser Sunda Islands, and the Moluccas. The following table gives the principal statistical information regarding the most important of these islands, the figures in the second column giving the multiple or fraction expressing the proportion of the area of the corresponding island to the total area of Great Britain (in round numbers 90,000 square miles), and the sign + after such figure indicating that the area is actually somewhat greater, the sign − that it is somewhat less than the figure represents:—

Group.	Island.	Area in Eng. sq. m.	Proportion to Great Britain.	Population.	Pop. per sq. mile.
Philippine and Sulu Islands.	Luzon, ...	41,123	½ −	4,540,000	110
	Mindanao, ...	33,377	⅓ +	192,000	5¾
	Smaller islands,	39,630		2,718,000	
Greater Sundas.	Borneo, ...	283,371	3 +	1,845,000	6½
	Sumatra, ...	162,615	2 −	3,704,000	23
	Banka, ...	4,899	1/20	69,000	14
	Java, ...	48,611	½ +	17,756,000	365
	Celebes, ...	69,050	⅘ +	920,000	13
	Smaller islands,	24,388		940,750	
Lesser Sundas.	Sumbawa, ...	5,187	1/18	150,000	30
	Timor, ...	11,940	⅛ −	600,000	50
	Smaller islands,	25,346		858,000	
Moluccas.	Ceram, ...	7,027	1/13	200,000	30
	Gilolo, ...	6,412	1/14	100,000	15
	Smaller islands,	7,016		200,000	
Total (in	round numbers),	770,000	8½	34,793,000	

GENERAL CHARACTERISTICS.—The whole of this group of islands is usually reckoned as belonging to Asia, but it has in comparatively recent times come to be pretty generally recognized on various grounds that properly speaking only the western islands belong to Asia, while the eastern islands belong geographically to Australia and New Guinea. The division between the Asiatic and Australian sections of the group, the division known as Wallace's Line, from the fact that it was first pointed out by the British naturalist A. R. Wallace, is formed by the channel separating the islands of Bali and Lombok, the Strait of Macassar between Borneo and Celebes, and the sea lying between Borneo and the Philippines. The sea that stretches between the islands west of this division and Asia, and which separates the islands from one another, nowhere exceeds sixty fathoms in depth, and that lying to the east on the Australian side yields no deeper soundings than a hundred fathoms, while the dividing channels have a depth greatly in excess of that. This fact in itself led to the

surmise that the western isles were in a previous geological epoch connected with Asia, and the eastern isles with Australia and New Guinea; and the surmise was rendered a very probable conclusion by the observation that the fauna of the isles in the west has a distinctly Asiatic, and that of the isles in the east a distinctly Australian type. In the former, in addition to animals peculiar to the islands themselves, there are found the animals of India, in the latter are found marsupial animals, cassowaries, and the true bird of paradise, which are to be met with nowhere else except in Australia. A difference has been observed even between the human types belonging to the two sets of islands, but in this case, as might be expected, the boundary line between the different races is not so clearly defined as in that of plants and animals. The character of the fauna and flora of earlier geological epochs in Europe, Asia, and



Banda, the Anchorage and Goenong Api (Moluccas).

Australia shows that the separation must have taken place in the course of the tertiary period.

The islands of the Eastern Archipelago are all tropical, and, except the Philippine group, which stretches northwards to about 20° N., are nearly confined between the parallels of 8° N. and 10° S. The same line of volcanic action that passes through the Japanese islands is continued in a curve round the whole series of the exterior islands of the group; southwards through the Philippine Islands and across the sea of Celebes by the islands of Sangir and Siao to the northern extremity of the island of Celebes, then through Gilolo, Ternate, and Tidore to Amboyna, Banda, and the Serwatty Islands, thence westwards through Flores, Sumbawa, Lombok, Bali, and Java, and finally north-westwards to the extremity of Sumatra. The inner islands, including Borneo and the greater part of Celebes, thus remain outside of the sphere of volcanic action.

CLIMATE.—The climate of the archipelago is more uniformly hot and moist than that of any other region between the tropics. The mean temperature except in the higher regions is from 88° to 90° Fahr. As in other parts of southern and eastern Asia the seasonal variations in the climate are mainly governed by the

monsoons, but here the monsoons blow in different directions on opposite sides of the equator. North of the equator the alternating winds are, like those of the maritime parts of the continent, north-east and south-west, but south of the equator they are south-east and north-west, the north-west monsoon blowing south of the equator during the months in which the north-east monsoon blows north of the equator (October to April), and the south-east monsoon in the south blowing simultaneously with the south-west in the north. On both sides of the equator the monsoon blowing partly from the west is that which brings most rain, that being the one which blows from regions where the capacity of the atmosphere for holding vapour in suspension is greatest, to regions in which it is less, and in which consequently condensation takes place. The rainy season is thus different on different sides of the equator, occurring between April and October on the north and between October and April on the south. Local causes, however, bring about exceptions to this general rule. The north-east and south-east monsoons, being nothing else than the regular trade-winds, are characteristically dry, which at sea they invariably are, but on land they not infrequently bring rain, from the mountains compelling the ascent of the vapour-charged air to such a height that condensation takes place in consequence of the cold to which it is exposed in the higher regions. Thus the rainy season in the north and east of the Philippine Islands (which are protected by mountains from the rains of the south-west monsoon) occurs during the period of the north-east monsoon or trade-wind, and the same wind brings rain also to Amboyna, the Banda Islands and Ceram, and also to certain parts of Eastern Borneo and Java, and the highlands of Sumatra.

PRODUCTIONS.—The archipelago in general is remarkable for the exuberant fertility of its soil and its unsurpassed wealth in valuable commercial products. It is characteristic of the group that in most of the islands the mountains are clothed with woods to their very summit. Almost the only exception to this is presented by Timor and the neighbouring islands, which are not indeed without trees (eucalyptus, acacia, sandal-wood, &c.), but have no proper woods, a circumstance no doubt attributable to the fact that, owing to their position with reference to Australia, the dry south-east monsoon prevails there for an unusual length of time, and is besides peculiarly deficient in moisture, inasmuch as it blows directly over the arid regions of Australia before it reaches Timor. The small islands of Timor Laut and the Kei group, situated further to the north-east, so as to receive the monsoon from the Torres Strait, are as richly wooded as any in the whole archipelago. The most valuable trees of these island forests will be mentioned lower down, but trees do not form the only productions of these forest tracts. They are crowded in addition with the most luxuriant and beautiful vegetation of other sorts; creeping and climbing plants, gigantic ferns, orchids, and pitcher-plants, flowering plants of the most gorgeous hues, and sometimes—like the parasitic Rafflesia in the island of Sumatra and elsewhere, a plant consisting of nothing but a corolla occasionally three feet in diameter—attaining an enormous size.

Whatever tracts are not occupied by woods are almost everywhere covered

with a varied vegetation of another sort. Sandy deserts there are none, and even expanses of grass are to be found only on the islands of Sumatra and Celebes. The most fertile islands of the group are the Philippines and the Western Sundas as far as Western Borneo and including also Bali and Lombok. In all of these islands rice is the principal food of the people, while in the islands further east this means of subsistence is replaced for the most part by the pith of the sago palm. Among the other vegetable products of the islands are maize, arrowroot, coffee, sugar-cane, tea, pepper, cubebs and capsicum or Spanish pepper, cocoa (on some of the Moluccas and in northern Celebes), tobacco, cloves (native to the Moluccas), nutmegs, cinnamon, ginger, betel, gambier, opium, tamarinds, bananas, the coco-palm (very abundant on the coasts), the sugar-palm (*Arenga saccharifera* or *Saguerus saccharifer*), from which is obtained not only sugar (extracted from a juice known as palm-wine which flows out when the flower-stalk is cut) but also the fibre called by the Malays *gommuti* fibre used in making cordage, mats, &c., besides other products; the palm-like plant called *Nipa*, the leaves of which are used to cover houses; the *lontar* (*Borassus flabelliformis*), whose leaves are used as a writing material; indigo, dragon's-blood (from the *Calamus Draco*, principally found on Sumatra and Borneo), sappan-wood (principally on Sumatra and some of the smaller Sunda Isles), sandal-wood (principally on the Lesser Sundas), arnotto, safflower, curcuma, the cochineal-fig (introduced into Java from Spain about the beginning of the present century); the camphor tree (especially on Sumatra and Borneo, the best camphor being obtained from the neighbourhood of Baros on the former island), the cajeput tree, the castor-oil plant, *Liquidambar altingiana*, yielding the well-known fragrant balsam (in western Java this tree attains the height of 180 feet), sandarach (principally on Sumatra and Borneo), the dammara pine, the caoutchouc tree (*Ficus elastica*), especially common on Sumatra, the gutta-percha tree (*Isonandra gutta*), the *Canarium commune*, a native of the Moluccas, from the nuts of which an oil is expressed to be used when fresh as butter and also as a means of illumination; teak, ironwood, ebony, *Cedrela febrifuga*, a native of the Greater Sundas, yielding not only an excellent timber resembling mahogany in appearance and texture, and having a fragrant odour, but also an astringent bark found valuable in fevers, dysentery, &c., the cinchona tree, now cultivated with success in Java, besides all kinds of delicious tropical fruits, including the celebrated durian, the fruit with a most detestable, "almost unmentionable, perfectly indescribable odour," but with a flavour so exquisite as, according to Mr. Wallace, to make it worth a journey to the East only to taste it.

Among the commercial products yielded by the animal kingdom are ivory and rhinoceros horns (from Sumatra), tiger-skins (from Sumatra and Java), civet, edible birds'-nests, the work of a marine swallow called the salangan which is found in millions on the south coast of Java and elsewhere, trepang, &c. The principal mineral products are coal (in Borneo, where the output is becoming greater every year, and Sumatra), tin (in Banka and Blitong), and salt (the best being found on Java and Madura).

PEOPLE.—The older population of the Eastern Archipelago is divisible into at least two distinct races or stocks, a black and a brown. The black race,

which is distinguished not only by its depth of tint, but also by the diminutive size of the people and their curly hair, is now generally called the Papuan race, from having its home apparently in the island of Papua or New Guinea. In the Eastern Archipelago the race is still represented by small remnants on the Philippine Islands (where they are called by the Spaniards Negritos, or little negroes, and in the language of the natives Aëtas or Itas), and also on Sumatra, Borneo, Celebes, Gilolo, and other islands. The people of the brown race are by some referred to a single stock, the Malay; but Junghuhn, one of those most intimately acquainted with the islands of the East, divides the race into two stocks, a Malay and a Battah or Battak. Those who take the former view divide the Malays into eight branches: (1) The Malays proper on Sumatra as well as the Malay Peninsula. (2) The Tagals, forming the bulk of the population of the Philippine Islands, where they are called by the Spaniards Indios, and inhabiting also the Sulu Islands. (3) The Sundanese in the west of the island of Java, forming the connecting link between the Malays, Javanese, and Battahs. (4) The Javanese in the east of the island of Java, and in Bali and Madura, the most highly civilized branch of the Malay stock. (5) The Battahs or Battaks in the interior of Sumatra, and on the Nias and Batoe Islands to the west. To this branch also the Hovas of Madagascar must be referred on account of the affinities of their languages. (6) The Dyaks (or, as they call themselves, Olo-Ngaju) in the south and the interior of Borneo. (7) The Macassars in the south-west and the Buginese in the south-east of Celebes. (8) The Alfoories or Harafora in the interior of Eastern Celebes and on the Moluccas. The physical peculiarities which, according to Junghuhn, distinguish the Battah stock from the Malays are a smaller mouth, a less flattened nose with thinner nostrils, finer hair, often brown in colour, a lighter skin, higher stature, and superior physical strength. The Battah tribes, as distinguished by Junghuhn, include besides the tribe of that name already mentioned on the island of Sumatra and the neighbouring small islands on the west coast, the inhabitants of the districts of Pasuma and Lampong on Sumatra, the people of Sumba and Timor, a portion of the inhabitants of Flores and Sumbawa, the Buginese and Macassars on Celebes, the Dyaks of Borneo, and the inhabitants of some of the smaller islands. The marks of

Dyaks (Borneo).
1, Dooson (north coast). 2, Saghai (south-east coast).

distinction between Malays and Battahs are not nearly so striking, however, as those between both sections and the black race. These form a complete contrast to one another in temperament and character as well as in physical features. The Papua is quick in his movements, speaks loud, and exhibits a remarkable degree of vivacity; the Malay is calm, collected, and devoid of animation. When Papuans come on board of a trading ship they at once demand tobacco and arrack, all speak at once, and also sing and laugh. The Malays, on the other hand, first ask permission to come on board, speak at first very little, then pay a few compliments, and only gradually and with great caution proceed to business. They talk in a low voice and in a cool deliberate manner. The total number of Malays (including Battahs) is estimated at 20,000,000 or 21,000,000.

As regards religion the Malays are mainly Mohammedans except on the Philippine Islands, where they have been gained over to Christianity. Those reckoned by Junghuhn to the Battah stock are heathen except the Buginese and Macassars, who are Mohammedans. The Balinese, or inhabitants of Bali, adhere to a form of Brahmanism, and Christianity has been introduced among the inhabitants of Timor. In the Dutch possessions, however, Christianity has made very little way, and its spread is not encouraged by the Dutch government, from a fear lest, if the prohibition imposed by the Mohammedan religion on the use of intoxicating drinks were removed, the habits of the people might become deteriorated.

The Chinese occupy a very important place in the population of the Archipelago. Although expert sailors the Malays are not much given to trade, and this department of industry is almost everywhere monopolized by the Chinese, and the same people are also the miners and mechanics of the island group. The Malay is, in short, as elsewhere stated, incurably lazy and unfitted for all kinds of occupation that demand steady persevering industry, and as this quality is possessed in an eminent degree by the Chinese, this people, though nowhere liked, is recognized as indispensable. They never (or at least rarely) abandon any of their own customs, and they live in separate villages under their own chiefs. Many of them return to their native country as soon as they have amassed what seems to them a sufficient fortune, but many also remain and marry native women.

The Arabs occupy quite a different position from the Chinese. On the Greater Sunda Islands especially they have acquired a high degree of influence, chiefly as the original disseminators of the now dominant religion, but partly also as traders. They came to Sumatra at least as early as the thirteenth century, and from that centre spread over a wider and wider area with the progress of time. Already in the fifteenth century the majority of the Malays had been won over to Mohammedanism, and the Arabs held a very influential position. They married into the families of the native princes, and not infrequently they managed to bring the government into their own hands. Their political influence was broken when the Dutch became powerful in this quarter, and since then the Arabs (who now number only a few thousands) have become for the most part either priests or merchants. They keep themselves even more isolated than the

Chinese, marriages of Arab men with Malay women being very rare. Besides Chinese and Arabs there is a considerable number of Europeans, principally Dutch. The offspring of mixed races (Chinese and Malay, European and Malay, &c.) are called *Liplaps*. The language generally used in commerce is the Malay.

GOVERNMENT, &c.—The first European power to acquire influence in the Eastern Archipelago was the Portuguese, who established themselves on the Moluccas early in the sixteenth century. In 1569 the Spaniards, after several unsuccessful expeditions, managed to make themselves masters of the Philippine Islands, which they still retain, and to which they have since annexed the Sulu Islands. In 1595 the Dutch formed their first settlement on Java, and in process of time they became the dominant power in this quarter of the world, bringing by far the larger part of the area of all the islands to the south of the Philippine group directly or indirectly under their sway, and leaving to the Portuguese only the north-eastern part of the island of Timor.

In the Spanish possessions the supreme civil and military government is in the hands of a governor-general appointed by the crown, who is assisted in the discharge of his various functions by ministers and juntas, with whom he may advise or to whom he may delegate his powers. An *alcalde*, or *corregidor*, is appointed directly by the crown for each of the provinces as administrative, judicial, and fiscal officer. Each pueblo is under a native *gobernadorcillo* or mayor, popularly elected. The Chinese and Chinese half-castes are allowed magistrates of their own. Both army and marine consist almost entirely of natives.

The Dutch possessions are divided into what may be called the home government, comprising Java and Madura with an area of 50,864 square miles and a population of 18,807,320, and the external possessions (*Buitenbezittingen*), with a total area roughly estimated at 656,000 square miles and an estimated population of 7,800,000. The latter possessions include the greater part of Sumatra, Borneo, and Celebes, the Moluccas, Riou or Riouw, Banka, Billiton or Blitong, Bali, Lombok, the south-west of Timor, Flores, Sumba or Sandal-wood Island. In many cases these possessions are subject to native princes, who are merely tributary to or acknowledge the suzerainty of the Dutch. The total number of Europeans in civil capacities resident in the Dutch possessions at the time of the last census was 36,360 (in the home government 28,672), the total number of Chinese 325,000 (198,000), the number of Arabs 14,000.

At the head of the Dutch administration in the Eastern Archipelago stands the governor-general with viceregal authority, next to whom are the "residents" or governors of the divisions called residencies. The residencies again are subdivided into regencies, and the regent is in each case a native of the highest rank, usually a member of the former reigning house, whose influence on his people still remains unbroken. Alongside of each regent there is a European with the title of assistant-resident, who is instructed to look upon the regent as his younger brother, but who at the same time is the real head of the regency. The regent invariably follows his instructions, and has virtually no other function than that of making the European authority palatable to the natives. Under

the regent are the district and *dessa* chiefs, who are elected by the people, and whose duty it is to collect the taxes. Dessa is the native name of a village-commune, every village in Java forming a separate community which manages its own internal affairs. According to the traditional customs of the Malays every such commune also holds all the land belonging to it in common, but this part of the system remains in full force only in Central Java. In other parts of Java and elsewhere in the Sunda Islands the soil has become the property of the individual members of the commune, and in some places of European owners.

Wherever the territory is under direct Dutch administration the land is cultivated for the behoof of the Dutch government. The system according to which this is done, known as the "culture-system" of Van den Bosch, was introduced in 1832, and formerly involved the employment of the forced labour of the natives in nearly all departments of agriculture. Various modifications of the system have, however, been introduced, and forced labour is now exacted only on the coffee and sugar plantations; and on the latter the abolition of forced labour within twenty years was determined on by the home government in 1870. As the system is at present pursued the Dutch government carries on plantations, especially of coffee, cinchona, and the cochineal-fig, on the land belonging to itself, and the natives are required to sell all the products of their own plantations (coffee, tea, indigo, pepper, tobacco, &c.) to the Dutch government at fixed, and naturally very low, prices. The extraction of sugar from the cane is in the hands of Europeans and Chinese, to whom are assigned certain villages the inhabitants of which must cultivate the sugar plantations for them and work in the sugar-factories. The product is sold, like the direct products of agriculture, exclusively to the Dutch government. The government also has the monopoly of the collecting of edible birds'-nests, the making of sea-salt, the felling of the teakwoods, and the sale of opium. The products intended for the European market are all sold in large auctions in Europe, the Dutch Trading Company (*Nederlandsch Handels-maatschappij*) undertaking this on behalf of the government. The profits of this trade make up an important part of the revenue of the Dutch monarchy.

The success of this system has been in many respects gratifying to the Dutch government. Not only has it proved hitherto on the whole financially successful, but the native population has thriven and multiplied rapidly under it, and remained apparently contented. Since 1825 the trade of Java has increased from eleven to twelve fold, and the population has grown from 6½ to nearly 19 millions; and since 1830 the quiet of the island has never been disturbed.

After this general account of the Eastern Archipelago it remains for us only to glance at some of the special features and points of interest of the principal islands and subordinate groups.

THE PHILIPPINES, or PHILIPPINE ISLANDS, form an archipelago in the Pacific Ocean, lying nearly parallel to the coast of Anam at the distance of about twelve degrees of longitude, and composed of about 1200 large and small islands. The largest of these are Luzon in the north and Mindanao in the south, between which lies the Bissayas group, the most important members of which are Mindoro,

Samar, Panay, Leyte, Zebu, Negros, Pojol or Bohol. Their total area is about 113,140 square miles, and their estimated population 7,250,000, or about 64 to the square mile.

The shore lines and internal surface of the larger islands are extremely rugged and irregular. The climate on the whole is healthy. Earthquakes are frequent, and often very destructive. The principal agricultural product is rice, and next in importance are sugar-cane, tobacco, and coffee. Fibrous plants are also abundant, and among these the chief are *Musa textilis*, yielding the well-known Manila hemp, the cotton-plant, the gommuti- or sugar-palm, and a kind of flax called *rame*. The pine-apple is grown both for its fibre and its fruit. Ironstone is found yielding eighty per cent of iron, and rich specimens of copper attest the presence of that metal. Among the numerous volcanoes, extinct or active, abundance of sulphur is found. The textile productions of the Philippines (the work of the native Malay population called Tagals) are considerable in number, ranging from the delicate and costly *pina* muslins, made from the pine-apple fibre, and *sinamays* made from it, mixed with Manila hemp, to coarse cottons, sacking, and the beautiful mats made of Manila hemp and the fibre of the gommuti- or sugar-palm. Equally admirable are the carved articles executed by the same native population. An extensive coasting trade is carried on by the Tagals and Chinese. The foreign trade is in the hands of foreign, especially British and American, mercantile houses, and consists principally in the export of sugar, rice, tobacco, Manila hemp, indigo, coffee, birds'-nests, trepang, sapan-wood, dye-woods, hides, ratans, mother-of-pearl, gold-dust, &c., and in importing wines and liqueurs, foodstuffs (olives, cheese, butter, ham, &c.), and various manufactured articles. More than a third of the exports is sent to the United Kingdom.

A Street in Samboango,
south-western extremity of Mindanao (Philippines).

The Philippines were discovered by Magellan in 1520–21, and were named by the Spaniards in 1543 after the Infant Philip, afterwards Philip II. The chief town and seat of government is Manila or Manilla, a busy commercial city and the only town of importance in the group; population about 160,000. It is situated at the head of a fine bay on the west coast of Luzon, and contains numerous manufactories, among them large cigar manufactories, carried on for the behoof of the government. It is the seat of a university (the University of St. Thomas) and other educational institutions. The locality in which it is

situated is much subject to earthquakes. Destructive shocks were experienced here on the 13th, 18th, 20th, 21st, and 24th of February, 1879, one of them lasting fifty-five seconds. The governor's residence with other buildings was destroyed, and many inhabitants were killed. At the same time almost all the volcanoes in the island burst into active eruption.

The Sulu Islands are an archipelago of small mountainous but very productive islands lying between the Philippine Islands and Borneo, inhabited by a people of Malayan race professing the Mohammedan religion. The islands were at one time notorious as a nest of pirates, but in 1851 the governor of Manila undertook a war of extermination against the pirates and brought the islands to some extent under the control of Spain, and by a treaty concluded at Manila on the 15th of August, 1878, the Sultan of Sulu formally recognized the sovereignty of Spain in the islands, himself renouncing all authority in them. The area of the group is about 990 square miles, the estimated population 200,000.

The Harbour, Manila.

BORNEO is, with the exception of Australia and New Guinea, the largest island in the world. Its circumference is about 3000, its greatest length 780, and its greatest breadth 690 miles; area about 283,000 square miles. In former times only the coasts were known to Europeans, but of late years part of the interior in the south and west has been explored by various travellers, of whom Müller, St. John, Wallace, and Burbidge may be named. So far as is yet known the island appears to consist mainly of plains and undulating plateaux and valleys, dominated by isolated mountains and mountain chains. In the north-east a range of mountains, composed of granite, micaceous schist, syenite, and limestone, culminates in Mount Kinibalu, which reaches the height of 13,700 feet. A marshy belt of alluvial deposits many miles in breadth mostly covered with primeval forests surrounds the whole island, so that the rivers afford the only means of penetrating into the interior. The vegetable productions present nothing very distinctive, but among the characteristic animals of the island may be mentioned the orang-outang, the proboscis-monkey (*Semnopithecus nasicus* or

Nasalis larvatus), already mentioned as belonging to the fauna of China; the *Potamophilus barbatus*, an animal holding a place between the fish-otter and the civet-cat; and the tufted-tailed porcupine (*Hystrix* or *Arethura fasciculata*). The only member of the feline genus is a small species of leopard, and deer are consequently remarkably numerous. The mineral productions are peculiarly varied and abundant, including gold (both in veins and in the rivers), iron (chiefly in the south), antimony (on the north-west coast), tin and zinc in the interior and west, besides porcelain earth, crystals, and diamonds. The inhabitants are mainly composed of Mohammedan Malays in the outer ring of the island, and Dyaks, a heathen race numbering about a million, which has been driven into the interior or subjugated by the Mohammedan Malays. The Dyaks are unquestionably among the earliest inhabitants of the island, and are a finely-formed race, of a yellow complexion. They are described as docile, industrious, and faithful, and are credited with superior natural capacity to the Malays, although their development in civilization has been hindered by the encroachments of the latter race. The more advanced tribes (forming the great majority) practise agriculture, and dwell in neatly constructed and tolerably comfortable houses. They make all their own implements and weapons of war, and are celebrated for their *creases* (a kind of dagger in general use in the Eastern Archipelago), and their still more dreaded *sampitan*, a tube of from six to nine feet in length, from which they blow poisoned arrows to a distance of thirty or forty paces. Bugis, chiefly emigrants from Celebes, live among the Dyaks, and have become rich and powerful by commerce, and still more by piracy. In the northern part of the island there are traces of an earlier settlement of Chinese in the island, one native tribe there still wearing pig-tails, and, though now speaking the language of the surrounding tribes, yet able "to converse in very fair Chinese after a little practice." Some of the tribes are in a completely savage state, and have earned an evil reputation by their practice of "head-hunting," or the collecting of the skulls of their victims in war or predatory expeditions. Besides these two elements of the population there are about 100,000 Chinese, who follow the same pursuits here as elsewhere in the Archipelago (mining, trading, &c.), and about 30,000 settlers from Celebes.

The south-western, southern, and eastern portions of the island, or about two-thirds of the whole, are possessed by the Dutch, under whom are a number of semi-independent princes. On the north-west coast is the Malay kingdom of **Brunei**, sometimes called **Borneo Proper**, over which the Dutch do not claim jurisdiction. There is now, however, a state under English rule (though not under the British crown) on the west coast of the island, namely, **Sarawak**, acquired by Sir James Brooke in 1841; while **Labuan**, an island of about 45 square miles in extent off the coast, has been in the possession of the British crown since 1846, and the north-eastern peninsula of Borneo was ceded in 1877 by the sultans of Brunei and the Sulu Islands to a British company, and now has a British resident and vice-consul. Labuan has an excellent harbour and plentiful stores of coal, though the production of this mineral is but moderate. The chief town in Dutch Borneo is Bandjermasin on the south

coast with an estimated population of 30,000, and the largest town in the rest of the island Brunei, on the north-west coast, the capital of the native sultanate of the same name. Its population appears to be rather less than that of Bandjermasin.

SUMATRA is the island lying furthest to the west in the Eastern Archipelago, and in respect of size it ranks next after Borneo, its area (163,000 square miles) being equal to four-sevenths of that of the latter island. Its greatest length is about 1050 and its greatest breadth about 250 miles. It lies from north-west to south-east and is almost exactly bisected by the equator. Along the west side of the island there runs a magnificent series of volcanic mountains, which in the south-east divides and spreads over the island. The east side of the island is for the most part composed of alluvial formations, which on the coast are so low as to be annually inundated during the rainy season to the distance of from twenty to thirty miles inland of Palembang, but further in the interior rise with a very gradual slope till the country becomes slightly undulating, numerous little valleys being formed by the streams that traverse it. From the general distribution of the mountains of Sumatra, from the direction of the streams (all flowing to the north-east), and from other indications Mr. A. R. Wallace points out that it may with great probability be inferred that the bulk of the level portion of the island has been formed by the denudation of the volcanic mountains of the west; and, although there can be little doubt that at a remote geological period the island of Sumatra, with the rest of the western islands of the Eastern Archipelago, was, as already stated in the general article, connected with the continent of Asia, there is equally good evidence to show that in a more recent age (immediately after the protrusion of the volcanic mountains) the island was much narrower and was separated both from the Malay Peninsula and the Island of Banka (which appears at one time to have formed a continuation of that peninsula) by a wider expanse of sea. This latter island never appears to have been connected with the island of Sumatra, for not only is its geological structure different, it being granite while in Sumatra the predominant rock is trachyte, but in Banka there are animals, including birds and insects, quite distinct from those of Sumatra. Mangroves and Casuarinæ (leafless trees resembling gigantic Equiseta or horsetails) grow in the marshes of the coasts, and the deltas in the north-east are thickly grown with palms. In the north the camphor-tree prevails, and the gutta-percha tree is remarkably plentiful. The upas-tree and the gigantic Rafflesia are among the vegetable curiosities. When Sumatra was first visited by Europeans pepper was the only, as it is still the chief, cultivated product. The fauna of Sumatra resembles that of Borneo more closely than that of the countries with which it is almost in contact. The elephant and the tapir, frequent in Sumatra, are unknown in Java. The former island has the two-horned, the latter a single-horned rhinoceros. The orang-outang inhabits, in Sumatra as in Borneo, the low alluvial tracts and thickly wooded deltas, and is wanting in Java, where alluvial plains have little extension. The mineral wealth of the island is abundant, and includes gold, copper, tin, and iron, besides which immense deposits of excellent coal have been discovered near the river Ombilin,

in the highlands of Padang. Manufacturing industry is confined to the weaving of cotton materials for clothing, and the making of articles in gold.

Sumatra is possessed at the present day by a very mixed population. The southern part of the island is inhabited by genuine Malays, the northern part by kindred tribes, but speaking different languages and differing also in physical appearance. The principal of these tribes are the Battahs or Battaks, in the north central region, and the Acheenese (believed to be a mixture of Battahs and Malays with Hindus) in the extreme north-west. The Battahs are a peculiar and interesting race. Like the Malays they are of short stature, but they differ from that people in being strongly built and well proportioned, and by having a type of features approaching decidedly to what is called the Caucasian. In character they are described as lazy, careless, good-humoured, loquacious, generous, sincere, and full of a noble dignity; but on the other hand, passionate, quarrelsome, and revengeful, and much given to gambling and drinking. Their language, though different from that of the Malays proper, seems to be an allied tongue. The art of writing has been known among the Battahs from a date beyond the reach of tradition. Their characters are peculiar, and also their mode of writing, for they begin at the bottom of the page at the left-hand side, and place letter above letter in a vertical column till they reach the top, when they return to the bottom and begin a second line at the right-hand side. Their ancient books are written in a brilliant ink on paper made of the bast of trees, but now they scratch their writing on slips of flattened bamboo. They believe in a Supreme Being, Dibata, whose dwelling is in the highest of the seven heavens, and also in a host of good and evil spirits; and they likewise have notions of a future existence and retribution. There are no priests among them. The Acheenese have much in common with the Battahs, but few of the good qualities of the latter are ascribed to them. They are said to be licentious, revengeful, and cruel, and they are passionately addicted to the use of opium, which is altogether avoided by their neighbours the Battahs. Their language is akin to that of the latter tribe, but contains many Malayan elements. In religion they are professed Mohammedans. On the coasts of Sumatra Buddhism appears to have been introduced at an early age, but it has since been completely superseded by Mohammedanism, which, among the Malays, however, is everywhere of a very relaxed character. Among all the indigenous tribes of Sumatra the characteristic political tendency is one that could have originated only in the recesses of the mountains. Every village affects independence, and nearly all of them are surrounded by some kind of fortification, forming what are known as *kampongs*. The villages often confederate, but confederation never changes the temper of the people, and the Sumatran is always refractory against any authority save that of his village chief. Till 1824 both the Dutch and British had settlements on the island, but in that year the British relinquished their settlements (Bencoolen) in exchange for the Dutch settlements in the Malay Peninsula. The right of the Dutch to extend their authority in Sumatra was formerly restricted under a treaty with Great Britain, but in 1871 this restriction was removed, and shortly after a war broke out

between the Dutch and Acheenese, which lasted for several years. Since this war the Dutch possessions in Sumatra may be said to comprise the whole area except perhaps about one thousand square miles in the interior of Acheen. The principal towns are Palembang, about 50 miles above the point where the Sœnang falls into the sea on the east coast, a place of about 50,000 inhabitants, many of whom form a floating population like that of Bangkok and the river-cities of China; and Padang (12,000), prettily situated on the west coast.

BANKA is a considerable island off the south-east coast of Sumatra, from which it is separated only by a comparatively narrow channel. (See previous paragraph.) Its surface is rather hilly than mountainous, but a few isolated mountains of low elevation rise above the hilly plains. The soil is not so rich as that of Java, and its agricultural are exceeded by its mineral resources. Among these the most important is tin, which is found not only in the soil itself (from which the ore is extracted by washing) but also in veins in the granite of which the heights are composed. Iron is also found, but other metals are scanty. About two-thirds of the inhabitants are Malays, the remainder Chinese. The former are professedly Mohammedans, but retain many heathen practices. The island of Banka forms with the neighbouring island of **Billiton**, or **Blitong**, a separate Dutch residency, the seat of the resident being at Muntok (3000) in the north-west of the island of Banka.

JAVA is the most fertile and by far the most populous of the islands of the Eastern Archipelago, and the principal seat of the Dutch power in the East. It is 630 miles long by 35 to 126 miles broad.

The Indian Ocean, which beats with great force along the south coast, has prevented the formation, on that side, of such alluvial plains as extend along the north parts. From the same cause the south coast is generally unsafe for shipping, while the north affords excellent anchorage at almost all times and places. The south presents a continuous front of crags and rocks, forming the outer edge of an extremely mountainous country; the north is flat and low, and covered in many places with mangrove swamps. The island is traversed in its whole length by two chains of mountains, which sometimes unite, and at other times depart from each other, forming ramifications separated by large and beautiful valleys, formed of volcanic debris, watered by rivers and torrents. The two chains, from 10,000 to above 12,000 feet high, are mainly composed of limestone of the tertiary formation, and thickly set with volcanoes, active and extinct, some of which are seen at sea from a great distance and form landmarks to the navigator. The still active volcanoes are remarkable for the quantity of sulphur and sulphureous vapours they discharge. In the present age they never eject streams of lava, but besides sand and ashes, chiefly melted or half-melted stones. Solfataras also are not uncommon, and in many places mephitic vapours escape from the ground. In some cases it is carbonic acid gas, in other cases sulphureous exhalations that poison the air, causing every living creature that enters within the sphere of their influence to drop, so that the ground is covered all round with the remains of deer, birds, and even of men. The streams are generally rapid, shallow, and so encumbered with sandbanks as to

be almost unnavigable. Only two rivers, the Solo and the Brantes, are navigable for large boats; the others are only suitable for proas or canoes of the lightest draught, or for floating down timber from the mountains.

The vegetation of Java is remarkably rich and varied. The coast is fringed with cocoa-nut trees, behind which the ground rises gently to the foot of the mountain chain, and is completely cultivated. Vast fields of rice, artificially watered, distributed amphitheatre-wise on the flanks of the hills, yield often three harvests annually, though the use of manure appears not yet to have been introduced. Higher up than the rice-fields the bases of the mountains are covered with vast forests of the fig-tree tribe of different species, remarkable for their great height and vigorous growth. These are followed still higher up in western Java by the plant-like liquidambars, with their erect white stems covered with parasites, in central Java by the *Parasponia parviflora* and in eastern by the chemoro or *Casuarina junghuhniana*. Along the upper limits of the liquidambars, about 5000 feet above the sea, lofty trees are still plentiful, and among these may be seen the *Podocarpus cupressus*, with its lofty straight stem, a tree allied to the yew, and furnishing the best timber in Java. About 7000 feet high the vegetation changes its aspect, and mosses appear, which, with heaths, are the principal plants found on the loftier elevations. Before leaving the natural vegetation the famed poison-tree, the chettik or upas (*Antiaris toxicaria*), may be named as a noted Javanese plant. Its poisonous qualities, however, have been very much exaggerated. Besides rice, the staple food of the people, the principal agricultural products of Japan are those produced under the culture-system for the European market, more particularly coffee grown from Mocha seeds (first introduced in 1723), sugar-cane, tobacco (introduced in the beginning of the seventeenth century), tea (introduced in 1828), cinchona, &c.

Including domestic and marine animals, 100 kinds of mammalia inhabit Java. In the west part the one-horned rhinoceros is not uncommon; and in the higher districts the royal tiger, panther, and tiger-cat keep the inhabitants in constant alarm by their depredations. The babyroussa and two kinds of wild hog form the large game of the island. A few species of the ape kind people the forests in countless numbers. Two kinds of lemurs inspire the inhabitants with superstitious fear by their mysterious nocturnal habits; and this island may be esteemed the native seat of the largest bats, some of which measure 5 feet across the wings. They may be seen suspended from the branches in hundreds during the day, and at night they devastate the orchards and gardens.

The people of Java are almost entirely composed of two closely allied Malayan tribes, the Sundanese in the west, and the Javanese proper in the middle and east. They are nearly all engaged in agriculture, and live under the shade of fruit-trees in low huts made of bamboos covered with palm-leaves and raised by posts about three feet above the ground. The wealthier classes have better dwellings, in some cases built of stone in imitation of European houses, and in general they are fond of luxury and pompous display. The mass of the Javanese take only one wife, but people of quality and wealth take advantage of the latitude allowed by the Koran and practise polygamy. All, without dis-

tinction, are passionately fond of gaming, more especially of cock-fighting. Betel-chewing is a general practice, tobacco smoking common, and opium smoking also practised to a deplorable extent. The Javanese are good tanners, and have made some progress in metallurgy, in carpentry, and cabinet-making. They weave and dye well; make paper from the mulberry; and many are engaged with poisoned arrows in obtaining fish, which, being salted and dried, constitute a great dainty. In religion they are Mohammedan, a faith introduced in the fourteenth century by the Arabians, and which has since almost entirely displaced both Hinduism and Buddhism, of both of which numerous imposing relics are to be met with in various parts of the island. The most remarkable and best known of these relics is the Buddhist temple of Boro Buddor (Boedhoer), situated not far from the middle of the south coast near the junction of the rivers Ello and Progo. It is supposed to belong to the seventh century of our era, and is interesting not only on account of the beauty of its architectural design, but still more on account of the immense number of sculptures in low relief with which its galleries are adorned.

Samarang (Java), Scene on the Banks of the Canal.

Batavia, the capital of Java and of the Dutch East Indies, is situated on the north coast near the west end, on a wide deep bay in which are interspersed many low green islets. The town consists of two portions, an old town situated in a low marshy plain near the sea and very unhealthy, and the new town composed of several suburbs which have more the appearance of a garden than a town. The principal of these suburbs is Weltevreden, occupying a plain lying above Batavia. The town was founded by the Dutch in 1619, taken by the British in 1811, but restored to the Dutch in 1816. It attained its greatest prosperity in the beginning of the eighteenth century, when it had a population of about 150,000. Its present population amounts to about 100,000, and is made up chiefly of Malays with a considerable admixture of Chinese and a small number of Europeans. The other principal towns are Sourabaya (Soerabaja), on the channel separating Java from Madura, with a population of 90,000; Sourakarta (Soerakarta), on the left bank of the Solo river, with a population of 50,000; and Samarang, on a deep bay about the middle of the north coast, with a population of about the same number, and an active trade carried on largely by Chinese.

MADURA is an island, about 2060 square miles in area, lying off the north-east coast of Java, from which it is separated by a narrow and scarcely navigable strait. Its surface is level or hilly, its soil less productive than that of Java, but well cultivated. The inhabitants are closely allied to the Javanese, but speak a slightly different dialect, and are said to excel the latter in energy and industry. Politically the island belongs to Java and forms a residency of that government. The most important town in the island is Soemanap on the south-east coast, but the seat of the resident is Bankullan.

BALI, an island of slightly greater area than Madura, lies immediately to the east of Java, and in its geological structure, climate, and productions closely resembles that part of Java to which it is adjacent; but its inhabitants, like those of Madura, get the credit of being in industry, and in bodily and mental vigour, superior to the Javanese. Their religion is a peculiar transmutation of Brahmanism, in consequence of which the Hindu system of caste prevails among them. The island is parcelled out into several small states ruled over by native princes, all of whom have been since 1849 under the control of the Dutch. Population roughly estimated at 100,000.

LOMBOK is another island of about the same size as the two previous ones, and is the first of the series on the Australian side of the deep channel which, as was mentioned in the general article, divides the archipelago into an Asiatic and an Australian group. The interior consists of a large, fertile, and tolerably well cultivated plain, skirted on the south by a low range of well-wooded mountains, and in the north by another range which culminates in the volcano of Rinjani, more than 12,000 feet in height. The masters of the island are mainly Balinese princes, the most powerful of whom acknowledges the suzerainty of the Dutch. Population roughly estimated at 100,000.

CELEBES is an island of remarkably irregular shape, and the third in size of the islands of the Eastern Archipelago, being less than half of the area of Sumatra. Its northern peninsula is called Menado, and its north-eastern portion, lying between 1° and 2° N. lat., Minahassa. The peninsula on the east is that of Bulante, and that on the south-west the Peninsula of Macassar.

Celebes is high and mountainous chiefly in the centre and the extreme north, where there are several active volcanoes. Like Sumatra a large part of its surface is occupied by broad grassy plains. The soil generally consists of a bed of vegetable mould from 10 to 20 feet thick, on decomposing basalt. The pith of the sago-palm furnishes the principal means of subsistence, and among plants requiring more careful cultivation are the coffee-tree, indigo, cacao, sugar-cane, manioc root, tobacco, &c. The coffee of Menado is excellent, and is even preferred to the best Javanese coffee. The harvest of cocoa-nuts is also considerable. Minahassa is said to be the most splendid province which is to be seen on the face of the earth. Until 1833 the native inhabitants (Alfoories) lived in a state of complete barbarism, but in that year the Dutch introduced the culture-system for the growth of coffee with the result of raising the inhabitants considerably in the scale of civilization. The village chieftains were induced to take part in the cultivation of the coffee-plant, and received from the Dutch a certain official

dignity. Coffee-beans for seeds were supplied from Java, from which island were also sent instructors and overseers. The labourers were provided with good nourishment, and the coffee was bought by the Dutch at a fixed price. Roads were made between the different villages, teachers were introduced, and Chinese traders brought in all kinds of wares. The inhabitants now became acquainted with some of the comforts of civilized life. The island is entirely destitute of the large carnivorous animals and pachyderms. None of the cat kind haunt its forests; nor has it the elephant, the rhinoceros, or the tapir. Deer and wild hogs abound, together with the babyroussa and herds of antelopes. Pouched animals here first occur; and there is also the *Cervus depressicornis*, a singular ruminating animal resembling both the ox and the deer. Among domesticated animals are found small but vigorous horses, buffaloes, goats, sheep, and pigs. Trepang and turtle are caught in abundance. Gold is found in all the valleys of the north peninsula, which is often convulsed by earthquakes, and abounds in sulphur. Copper of good quality occurs at various points, and in Macassar tin also, as pure as that of Banka. Diamonds are sometimes found almost at the surface of the ground, and precious stones are carried down in the sand of the torrents. The maritime districts of Celebes are inhabited by Malays; the Peninsula of Macassar is occupied by Bugis and Macassars. Mandhars dwell in the west of the island, and the mountainous regions in the interior, especially in the north, are inhabited by Alfoories or Harafora. The natives are subject to several petty rulers, most of whom are, however, more or less dependent on the Dutch.

A Street in the Malay Quarter, Macassar (Celebes).

With respect to religion, the Alfoories have their own vague superstitions. The more civilized inhabitants profess Mohammedanism; but previous to the introduction of that faith the Hindus had brought their religion to the island, and the natives say that there are fine Hindu monuments in the interior that have not yet been visited by Europeans. A large number of the Alfoories of Minahassa have been converted to Christianity. The capital is the town of Macassar (15,000 to 20,000), in the south-west of the island, in the bazaar of which are sold all the products of the neighbouring islands as well as of Celebes itself. The trade in trepang is very important, Macassar being the chief staple place for this article of commerce. The chief harbour in the north of the island is that of Kema, on the east coast of Minahassa, about 30 miles from Menado, on the west coast, where there is the chief bazaar in the north of the island.

SUMBAWA, one of the Lesser Sunda Islands lying between Lombok and Floris, has a mountainous surface with volcanic soil, well watered and very fruitful, producing sandalwood, cotton, tobacco, and rice. It is inhabited by a Malayan people professing Mohammedanism, and subject to native princes, all of whom, however, are entirely dependent on the Dutch. It is celebrated on account of the terrific eruption of the volcano of Temboro, between the 5th and 11th of April, 1815, when upwards of 12,000 human beings perished and a large part of the surrounding land was buried in ashes. The height of the volcano was reduced by the eruption from upwards of 14,000 to 7470 feet.

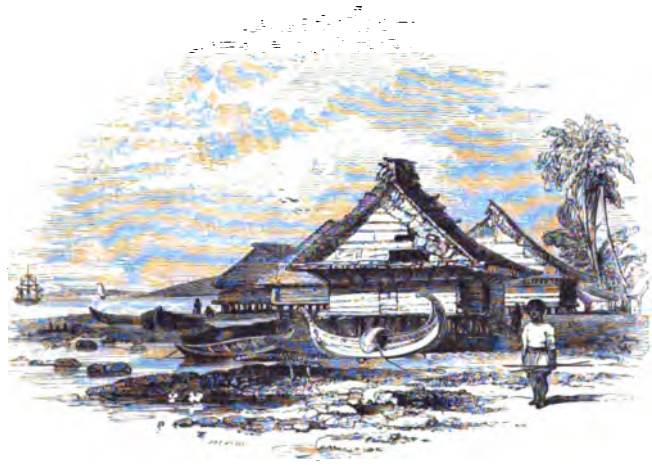
FLORIS, the next island to the east, has an area about one-sixth larger than that of Sumbawa. Its interior is very mountainous and densely wooded; the coasts flat and very fertile. The mountains are volcanic. The natives live in small states with patriarchal institutions, those in the west being nominally subject to the Sultan of Bima, while those in the east acknowledge the suzerainty of the Netherlands. The maritime population have the reputation of being pirates. There is a considerable trade in tortoise-shell, sandalwood, cinnamon, and birds'-nests, a trade almost exclusively in the hands of the Bugis. Population roughly estimated at 250,000.

SANDALWOOD ISLAND, called by the Dutch *Sandelhout* or *Sandelbosch*, and by the natives *Sumba*, lies to the south of Floris, and has an area equal to about two-thirds of that island. Its interior forms a table-land of above 3000 feet in height, with a healthy climate, and produces cotton and the kind of wood from which the island gets its name. The island is subject to native princes under the control of the Dutch. Population roughly estimated at 200,000.

TIMOR, the easternmost and largest of the Lesser Sundas, has an area of about 11,600 square miles and is consequently twice as large as Floris and three times as large as Sandalwood Island. It is surrounded by coral banks, and its shores are for the most part steep and not easily accessible. The interior is longitudinally traversed by a chain of mountains with peaks rising to nearly 12,000 feet in height. Its climate is hot and on the coast unhealthy. The inhabitants are of Papuan descent, but mixed with Malays. The north-eastern part of the island is in the hands of the Portuguese, who formed a settlement here in 1610 and converted a portion of the inhabitants to Christianity. Later in the same century the south-western (and larger) part was occupied by the Dutch, by whom it is still retained. Population roughly estimated at 600,000. The adjoining island of **OMBAY** (about 1700 square miles in extent) has a lofty, densely wooded surface, and a numerous and very barbarous population.

THE MOLUCCAS or SPICE ISLANDS is the name given to the south-eastern group of the Eastern Archipelago, including in the widest application of the name all the islands west of Celebes south-eastwards to the Kei, Arroo (Aroe), and Timor Laut islands between New Guinea and Australia. Originally the name Moluccas was applied only to the string of small islands extending along the west coast of Gilolo or Halmahera, now called the Lesser Moluccas. Most of these islands are mountainous, the rocks chiefly volcanic, only a few of the smallest islands belonging to the coral rag. In abundance and variety of

products they yield only to the large islands in the west; but what distinguishes them from all the other members of the Archipelago, as regards their vegetable products, is the growth of the spices (cloves and nutmegs) to which they owe one of their names. Under Dutch rule each of these products has been confined, with the view of securing the monopoly of them and more easily preventing smuggling, to certain islands; cloves, namely, to Amboyna and the still smaller adjacent islands, and nutmegs to the Banda group. Everywhere else the clove and nutmeg trees have been rooted out. The population consists mainly of tribes closely allied to those found on Mindanao and Celebes, mingled with settlers from islands further west. From the latter the inhabitants of the coasts have acquired different institutions and religious conceptions from the people of the interior (especially in the larger islands, Gilolo, Ceram, and Bouro or Boero), and accordingly stand out in sharp contrast with these, who are generally in a lower stage of civilization, and are distinguished by the name of Alfoories. The inhabitants of the Kei and Arroo groups and of Timor Laut are more akin to the people of New Guinea. The trade of these islands and their political control was at first in the hands of the Spaniards and Portuguese; but in the seventeenth century the discontent produced by the harsh treatment which the natives suffered from these masters gave the Dutch an opportunity for acquiring the islands for themselves. The total area of the Moluccas is about 25,800 square miles, the estimated population 560,000.



The Village of Warou in Ceram (Moluccas).

AFRICA.

Africa is one of the three great divisions of the Old World, and the second in extent of the five principal continents of the globe.

BOUNDARIES, DIMENSIONS, &c.—Africa is bounded on all sides by the sea, and since the excavation of the canal through the Isthmus of Suez, by which it was formerly connected with Asia, is completely insular. It extends through more than seventy-two degrees of latitude, from Cape Blanco in 37° 20′ N. to Cape Agulhas in 34° 50′ S., and through nearly sixty-nine degrees of longitude, from Cape Verde in 17° 34′ W. to Cape Guardafui in 51° 16′ E. The distance between the two former points is about 5000, and that between the two latter about 4800 miles. The total area, including the islands, is estimated at about 11,550,000 square miles, or almost exactly three times as great as that of Europe, the three continents of the Old World, Europe, Africa, and Asia, being proportioned to one another, in respect of area, as 42, 128, and 191, the area of Great Britain being taken as unity. Two-thirds of the area belongs to the northern hemisphere. The coast-line is more regular than that of any of the five continents of the world. Its total length, estimated at 16,000 miles, is one-fifth less than that of Europe, or, in other words, Africa has only one mile of coast for every 720 square miles of surface, while Europe has one mile of coast for every 190 square miles.

PHYSICAL FEATURES.—The prevailing characteristic of the surface of Africa is the extent of its plateaux. These cover much more than three-fourths of the entire surface, and though they vary greatly in elevation often present vast areas of nearly uniform level. The lowlands are found chiefly in the west and north of the Sahara and in narrow strips on the coast, and mountain chains are comparatively insignificant. The latter seldom rise to any great height above the general level of the neighbouring plateaux, and only in one case (the range behind the Zanzibar coast, including Mount Kenia and Kilimanjaro) do they attain an absolute elevation exceeding that of the Alps. Even the Sahara, the great rainless desert of northern Africa, is now known to resemble in its superficial features the continent as a whole. Formerly this region was conceived as an undeviating sandy plain dotted over here and there with speck-like oases, but recent explorations have shown it to consist mainly of plateaux, surmounted in some places by isolated summits and traversed in others by mountain chains, while its surface exhibits great diversity in other respects besides that of elevation. The most elevated parts of the Sahara all lie within the triangle bounded on the north-west by a line drawn from about lat. 30° N. and lon. 3° E. to about 17½° N. and 3° W. (Timbuctoo), on the north-east by a line terminating about 18° N. and 22° E. (Wanjanga), and on the south by the states of Soudan. The

extensive plateau of Ahagar, filling the apex of this triangle, has a general elevation of about 4250 feet. The group of plateaux belonging to Air or Asben further south varies in elevation from about 4200 to 6500 feet, and the north-eastern boundary of the area is formed by a range of mountains which attain in the south-east (in Tibesti, about 21° N. and 17° E.) an elevation of upwards of 8000. Outside of this triangle there are apparently few spots which rise to the height of 2000 feet, although about half the area seems to be above 1000 feet in height. The Libyan Desert itself, though it contains a series of depressions below sea-level running east to west between about 29° and 30° N. and 20° and 30° E., yet lies in great part at a considerable height above sea-level. From the depressions just mentioned it rises very gradually, to the eye imperceptibly, towards the south, and in the oasis of Kufra, in about lat. 25° N., attains an elevation of about 1300 feet. The most extensive areas below 1000 feet in height lie in the west to the south of Marocco, and in the north between southern Algeria and the Nile. In the north-west of Timbuctoo a large area known as El Jouf (the body of the desert), an area partly occupied by sand-downs and partly covered with saline incrustations, is suspected to be below sea-level. This has not yet, however, been definitely ascertained, and besides the depressions in the Libyan Desert already mentioned, the *shotts* of Tunis and Algeria extending westwards from the Lesser Syrtis are the only areas belonging to the Sahara actually known to be below the level of the sea.

With regard to the diversity exhibited by the surface of the Sahara apart from mere differences of elevation it is chiefly necessary to state that the desert is very far from being composed entirely of sand. Within the triangle described as including within it the highest elevations in the Sahara the sandy tracts are comparatively limited in extent. But the region is in most parts none the less desolate on that account. Enormous areas consist either of *hammada* or *serir*, the former being tracts in which the surface consists entirely of rock or sharp-edged stones, the latter those in which the surface is entirely covered with pebbles. Both are perfectly destitute of vegetation. The principal sandy areas form a girdle round this central triangle, but a girdle which is far from being continuous. Even in the Libyan Desert, where, if anywhere, real sand-oceans, according to Gerhard Rohlfs, the explorer most intimately acquainted with this part of the desert, are to be found, such tracts are considerably less extensive than the vast expanses of serir or pebbly wastes, while in the west and north of the Sahara the sands are far surpassed in extent by the hammadas.

The habitable spots within the area of the desert are known as *oases*, and these spots owe their existence to various conditions. They cannot exist except where water is present and the surface of the ground fit for vegetation, but sometimes this combination is furnished by nature, and sometimes it can be brought about by artificial means. In the former case the oases are supplied with water either by superficial or subterranean streams. Oases of the first kind are the most luxuriant of all, but they are found only on the slopes of great mountain ranges, especially on the south slopes of the Atlas. Artificial help is required for the production of oases where water is to be had at some distance

below the surface of the ground, and can be brought to the surface by artesian wells or other means, or where water has to be led from a distance to irrigate a fertilizable surface covered with sand or humus. The number and extent of oases in the Sahara have been found by recent travellers to be much greater than was formerly supposed. Even in the dreary Libyan Desert Gerhard Rohlfs was surprised at the diversity of surface which he found to exist and the number of oases that he visited or otherwise learned the existence of. Then as to their extent, there exists between about 24° and 26° N. and 21° and 23½° E. in this

The Oasis of Ederi (Fezzan).

desert a whole group of oases the cultivable area of which has been estimated at nearly 7000 square miles, or considerably greater than the Kingdom of Saxony and not very far short of that of Wales.

On the north the Sahara is separated from the sea in the east in one point by the small plateau of Barca, which rises to the height of about 1300 feet in the east of the Greater Syrtis, and in the west along the whole extent from the Atlantic to the Lesser Syrtis by the elevations to which the name of the Atlas Mountains is often applied as a general designation. In reality this name properly belongs only to the mountains of Marocco, where a genuine mountain range rises to upwards of 12,000 feet in height. To the east of this mountain range there stretches only an undulating plateau with a mean height of about

3000 feet, and a breadth varying from 50 to 90 miles, and at its eastern extremity this plateau breaks up into a congeries of disconnected chains of hills and mountains. On the south-west of the Sahara, that is, in the region partly traversed and partly inclosed by the Senegal and Niger, the highlands rise in terraces from these rivers and the sea and attain their highest elevation, not much above 7000 feet so far as is yet known, to the west of 10° W. The outermost of these terraces is in most places separated from the sea by a level tract. On the east these highlands are separated by the valleys of the Niger and Benue, on the one hand, from a belt of pastoral country (the Soudan), inclosing numerous isolated highland regions in Bornu, Waday, Darfur, and elsewhere, together with the relative depression of the basin of Lake Chad, less than 1000 feet in height, and extending from west to east along the south of the Sahara to Abyssinia, and, on the other hand, from the highlands of Adamawa, the Cameroon Mountains (13,000 feet), and the mountains of the Fan country.

The portion of Africa that still remains to be described, namely the south and east, consists in the main of plateaux of much greater elevation than those in the north and west. From the neighbourhood of the Red Sea north of Abyssinia and from the neighbourhood of Cape Guardafui in the north-east of the continent there appears to stretch a continuous series of plateaux not less than 4000 feet in height first south-west and south so as to inclose the whole of the lake region of Central Africa, and then westwards between about 10° and 13° S., nearly to the coast of Benguela; and this series of plateaux supports a number of others of considerable extent and still greater elevation. Of these loftier highlands the highest are those of Abyssinia, where there is a succession of terraced plateaux with very irregular surfaces, the innermost consisting of an aggregate of table-topped summits of about 9000 feet in height, with individual peaks rising to 15,000 feet or upwards. The lake-region is in many respects a highly diversified one, and is occupied by several distinct plateaux rising high above the general level of this part of the continent, and traversed here and there by mountain chains. East of Lake Victoria Nyanza about half way to the coast rise the mountains already referred to as the highest in Africa. Kilimanjaro, the highest of all, attains the height of 20,060 feet. West of the same lake the ground rapidly rises to 5000 feet, and mountains tower above that height for more than 3000 feet, thus reaching an absolute elevation of upwards of 8000 feet. The southern extremity of Lake Tanganyika advances close up to another lofty plateau, which occupies the whole interval between that lake and Lake Nyassa, stretching several degrees to the north of this lake, where it incloses Lake Hikwa, and sending out prolongations down part of the east and west sides of Nyassa and a third round the south of Lake Bangweolo. The boundary of this plateau on the north and east of Nyassa is what appears in maps under the name of the Kond Mountains, but between Nyassa and Tanganyika the plateau is itself traversed by a genuine mountain-chain, the Lambalamfipa Mountains, which rise majestically to the height of 8000 or 9000 feet. West of Lake Bangweolo the country remains only gently undulating till the Mossumba or Mossamba Mountains are reached in about 19° E., but beyond that limit another

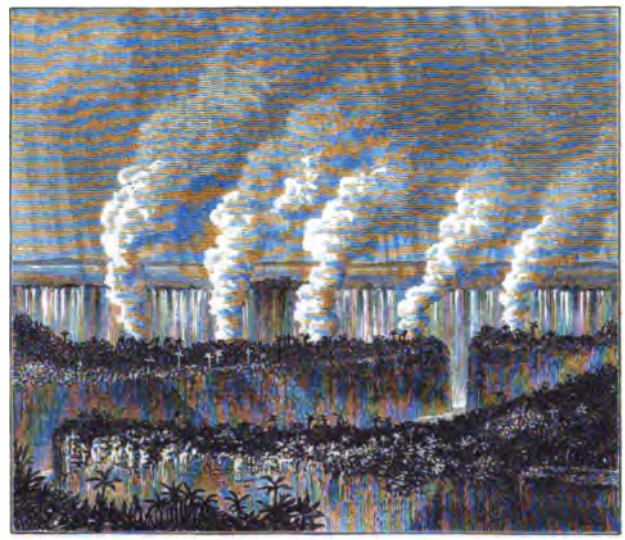
plateau rising above 5500 feet in height extends westwards nearly to the coast of Benguela.

The western branch of this great series of plateaux extending from Abyssinia to Benguela forms the watershed between the Congo basin and those of the Zambesi and the rivers further south, while that between the Congo and Nile systems lies in the northern branch of the same series of plateaux between Lake Tanganyika and Lake Victoria Nyanza. In the portion of the continent lying south of the Zambesi there are two separate plateau systems at least as high as the great northern series, one situated in the extreme south with its highest part in the east between about 29° and 31° S., and the other near the west coast north of the Orange River with its highest part between about 20° and 22° S. The ascent from the coast to the former of these plateau systems takes place by a succession of terraces, the exterior slopes of which are generally very precipitous. Between these two systems lies another, occupied chiefly by the Kalahari Desert, with a general elevation of about 3500 feet, and with a surface so uniform that its undulations are almost imperceptible, while hills and even knolls are almost entirely absent. The principal relative depressions in southern and eastern Africa are the Congo basin, the area lying to the north of Lake Ngami, the region east of the Nile bounded eastwards by a maritime range of heights the principal summits of which are from 4000 to 7000 above sea-level, and comparatively broad strips of coast between Delagoa Bay and the north-eastern peninsula, as well as a triangular tract between that peninsula and the Abyssinian plateaux. On the south and south-west the interior highlands advance in general much nearer to the coast than on the east. The greater part of the Congo basin as well as of the country bordering on the Nile appears to lie at an elevation considerably below 2000 feet, but the Ngami depression is at least 2500 feet in height.

A large part of the interior of Africa is still very imperfectly known, but at no period has its exploration been carried on with so much vigour by nearly all civilized nations than it is at present. In 1876 an international association for the exploration of Africa was founded under the presidency of the King of the Belgians, and various expeditions have been sent out by this association to opérate both from the east and the west coast. The intention is to establish a number of stations in the interior to serve as bases for further operations, and one such station has already been established on the east side on ground bought for the purpose on the east shore of Lake Tanganyika in about lat. 7° S., and another at Tabora on ground purchased from Arab settlers, in the land of the Unyamwezi, and others have been established on the Congo on the west side. On this side the operations have been under the direction of H. M. Stanley, who founded his first station at Vivi, at the foot of the Yellala Falls, at which point there is now a large trade carried on by means of steamers plying between this station and the mouth of the river. In the same quarter French stations have been founded by Savorgnan de Brazza, one at Nghimi near the water-shed between the Ogowe and Congo, and another upon the Congo itself, at Meuma or Ntamo not far from Stanley Pool. On the east side a German station has been

founded at Kakoma in Ugunda, between Unyamwezi and Lake Tanganyika. Besides the stations of the international association, the mission stations in the interior of Africa, the most important of which are mentioned below under *Religion*, may also be regarded to some extent as bases for exploration.

RIVERS.—The Nile is the only great river of Africa which flows to the Mediterranean. It is now known to receive its waters primarily from the country drained by the great lakes the Victoria and Albert Nyanza, and may be said to have its source in about 5° s. lat., which is about the place where the Liwumba, the highest feeder of the Shimiyu, the most important influent of the former lake, appears to take its rise. In the upper part of its course its principal tributaries are received from the water-shed on the south-west, but lower down it receives through the Bahr-el-Azrek and Atbara, or Blue Nile and Black River, the drainage of Abyssinia. The latter brings the mud which forms so precious a deposit in Egypt. The whole area drained by the river is more than a million of square miles. The only great river flowing from a distant point of the interior which breaks the mountain barrier of the east is the Zambesi, which is the fourth in size of the continent. It receives its head-waters partly from the western water-shed formed by the Mossamba Mountains, east of Angola, partly from a northern water-shed running eastwards from these mountains. After the union of its principal tributaries it reaches the Victoria Falls, one of the greatest cataracts in the world, from which it flows in a semicircular course to the ocean, breaking through the Lupata Mountains, and receiving the Shire from Lake Nyassa. The southern rivers are of small extent. Of the Atlantic rivers, the Senegal, the Gambia, and the Niger have their origin in the mountains near the coast of Senegambia. In the rainy season the Senegal is navigable for 500 to 700 miles, in the dry season for about a fourth of the distance. The Gambia takes a winding course to the west, and is navigable for about 400 miles, nearly its whole extent. The greatest of these rivers, the Niger, called by the natives in its upper part the Joliba, and lower down Quorra, enters the ocean by a number of mouths, the most distant of which are 200 miles apart. It is navigable for light vessels above Timbuctoo,



The Victoria Falls on the Zambesi River.

but between the Sokoto and the Benue has its course interrupted by shoals and rocks. The sources of this river were discovered in Oct. 1879 by a French expedition which started from the Sierra Leone coast. Its head-waters are formed by two streams, the Tembi and the Falico, both of which have their origin in the Loma Mountains, the former in 8° 36′ N., 10° 33′ W., the latter in 8° 45′ N., 10° 25′ W. The Congo, the second in extent of basin and the greatest in volume of the African rivers, flows from different slopes of the same water-partings as the Zambesi. Its origin is formed by the Chambeze, which rises in the mountains above Lake Nyassa, and falls into Lake Bangweolo, from which it issues under the name Luapula and flows north to Lake Moero. From the north side of this lake issues the Lualaba, which passes through a magnificent series of lake expansions and receives numerous tributaries. About the place where the river first crosses the equator there are six falls, and about 17° E. lon. and 2° 30′ S. lat. there begins a series of cataracts and rapids which interrupt the navigation for about 180 miles. Between these two points the Congo forms a navigable stream 835 miles in length and from 2 to 10 miles in breadth. Unlike most of the African rivers, the mouth of the Congo forms an estuary. It is estimated to pour into the ocean a larger body of water than the Mississippi. The Orange River, though it rises near the eastern coast and flows nearly across the continent, passes for the greater part of its course through the desert, receiving no tributaries, and is a shallow stream. The rivers which reach the ocean do not account for the whole drainage of Africa. There are two great and numerous smaller tracts from which no great river reaches the sea. The two great areas of internal drainage belong at least in part to the two great deserts. That of the northern desert is furrowed in every direction with water-courses, the beds of occasional streams, which lose themselves in the sand. To this area belongs the drainage system of Lake Chad, out of which flows the Bahr-el-Ghazal, which terminates in the salt lagoon of Bodele in the desert to the north-east of the lake. The Zouga, which flows east from Lake Ngami, in the Kalahari Desert, similarly loses itself in salt lagoons at greater or less distance, according to the supply of water.

LAKES.—With the exception of Lake Chad there are no great lakes in the northern division of Africa, whereas the southern division rivals in the number and magnificence of its lakes the northern continent of America. The Victoria Nyanza or Ukerewe has an area of about 29,000 square miles, or more than four times that of Lake Ladoga in Russia, and ten-elevenths of that of Lake Superior. The Albert Nyanza or Mwutan Nzige is much smaller and does not extend so far south as it was at one time believed to do. In 1877 it was circumnavigated by Col. Mason-Bey, and was found to have its southern extremity to the north of 1° N., from which it follows that a lake previously seen by Stanley in 0° 25′ S. and supposed to be the same as the Albert Nyanza must be a different lake, and this latter lake is now represented in some maps with uncertain boundaries under the name of the Muta Nzige. Next in size to the Victoria Nyanza is Lake Tanganyika, which has a length of 390 miles and a breadth varying from 15 to 60 miles, with an area estimated at 13,800 square miles. According

to some travellers the surface of this lake rose steadily for years up to 1879. Stanley, when he visited the lake in 1876, was satisfied that this rise was then going on, and declared that the Lukuga, the outlet which Cameron claimed to have discovered in 1874 on the west side, was in reality a feeder of the lake but was destined to become an outlet by the continued rise of the waters. Subsequent travellers have, however, seen good ground for coming to the conclusion that the Lukuga is alternately an outlet and a feeder of the lake, and that whether it is the one or the other depends entirely upon the amount of the rainfall, which may vary greatly from year to year. In 1879, when the Geographical Society's expedition visited the lake, the Lukuga was seen by Thomson as a noble river "moving swiftly away, bearing the drainage waters of Tanganyika to the far west—to the Congo and the Atlantic;" but before the end of his stay, which lasted only a few months, the volume of its waters had been considerably reduced. A lake situated to the south-east of Tanganyika, and usually called Lake Hikwa, was first seen by the last-mentioned traveller, though previously known by hearsay, and appears to be a large lake lying nearly north and south. Lake Nyassa has a length of about 250 miles, an extreme breadth of about 50 miles, and Lake Bangweolo, the only other lake in Southern Africa which, so far as is yet known, approaches those already mentioned in magnitude, has a length of 150 and a breadth of 80 miles. Another large sheet of water is supposed on the evidence of native report to exist east of Lake Nyassa. Lake Chad on the borders of the northern desert region, and Lake Ngami on the borders of the southern, have, as we have already seen, a remarkable resemblance in position, and in the fact that both are drained by streams that lose themselves in the sand. The shores of both lakes are perfectly flat, while the great lakes of Southern Africa are nearly everywhere bordered by comparatively high mountain ranges or the edges of high plateaux. The eastern part of Lake Chad is not so much a lake proper as an intricate net-work of channels winding in and out between innumerable islands. There are numerous salt lagoons in the northern portion of the Sahara, and the large salt lake of Assal on the east of Abyssinia.

GEOLOGY AND MINERALS.—Concerning the geology of Africa almost all that can be stated in general terms is that the forces of upheaval to which the continent owes its present configuration and superficial features operated for the most part in an early geological period, and that since the later tertiary epoch its form has been modified only in isolated and limited areas by minor disturbances of the earth's crust. The more recent strata are found almost exclusively in the maritime strip of Northern Africa, where almost all rocks are met with from the earliest to the most recent. The trias, which plays so important a part in the mountain systems of Southern and Central Europe, has not yet indeed been shown with certainty to exist in Africa; but, on the other hand, lias and Jura are here developed in the same manner as in the Alps, and the cretaceous system is represented in all its formations. The traces of older volcanic action in the region are numerous, but the signs of such activity still going on are remarkably scanty. Hot springs, especially sulphur springs, in Damaraland, Natal, the

Transvaal, at Tete on the Zambesi, and in the region west of Lake Victoria Nyanza, are almost the only volcanic phenomena still to be seen in South Africa; but the lofty mountains of Kilimanjaro and Kenia south of the equator are believed to be volcanoes not long extinct. Volcanic summits are frequent along the coast of the Red Sea, and eruptions have taken place in one of these as recently as 1861. Earthquakes are known to have occurred within historical times only in the Harar district south-east of Abyssinia and on the lower Zambesi. On the other hand the forces of erosion and atmospheric degradation have operated on an enormous scale in the whole of the northern part of the continent, where they have brought about extensive modifications in the superficial features.

Among minerals gold is found in considerable quantity in South Africa from the Transvaal Republic to the Zambesi, but rarely in such abundance as to make its working profitable. It is also found on the Gold Coast. Diamonds have been found in large numbers, and in apparently inexhaustible supply, on the Vaal River and its tributaries in Griqualand. A considerable native iron industry exists in some districts bordering on the Lualaba and Zambesi, round the great lakes at the sources of the Nile, and in Usanga on the east coast. Iron is also found in great abundance in Algeria and in considerable quantity in Upper Guinea and Angola. Copper is found in Loanda, Damaraland, Great and Little Namaqualand, and Algeria, and lead and tin in Great Namaqualand. Salt is very widely distributed, and there are immense deposits of rock-salt in the district of El Jouf, in Western Sahara, and also in the Atlas region. Coal, including bituminous coal and anthracite, is found in the Cape region, and coal-beds have been opened up at Pieter-Maritzburg in Natal and at Tete on the Zambesi.

CLIMATE.—The climate of Africa is mainly influenced by the fact that, except the countries on the north and south coast, it lies almost entirely within the tropics. It is the only continent which extends unbroken from the northern to the southern tropic, and is consequently the hottest of all. In the belt immediately under the equator, both north and south, extending for about ten degrees north and south, rain is abundant, and remains standing in pools for months. To the north and south of this equatorial belt the rainfall diminishes till we come to the rainless regions of the Sahara (as well as the Nile valley) on the north and the Kalahari Desert on the south, extending beyond the tropics, and bordering on the agricultural and pastoral countries of the north and south coasts, which lie entirely in the temperate zone. The whole region of Sahara is not, however, absolutely rainless. Regular though very deficient rains fall both on the western strip contiguous to the Atlantic, and on the south within an arc of a circle whose highest point is about 19° N. and 6° E. This area is said to be steadily increasing.

The winds and rains in Africa are chiefly produced by the successive exposure of the various intertropical belts to the vertical rays of the sun. The monsoons of the Indian Ocean exercise the principal modifying influence. From March to September the south-west monsoon blows from Africa to Asia, and during the

remaining months the north-east monsoon blows towards the African coast. The chief cause of the rainlessness of the deserts is the direction of the winds. In the Sahara the prevailing winds are more or less easterly, which is due to the fact that the uniformity of level which generally characterizes large areas of the desert admits of the trade-winds blowing over its surface with almost the same regularity as over the ocean, and these winds have in both cases the same rainless character. Coming from the dry regions of Central Asia they have not much moisture to begin with, and owing to the direction in which they blow they are always moving further and further from the point of saturation, and consequently even the mountains which they meet with in their course over the desert are not sufficient to produce local condensations. In the Kalahari, again, the prevailing winds are from the south and south-west, which is due to the influence of the cold current that ascends along the west coast of Africa. There is an almost constant indraught of cold air from above this current towards the heated and rarefied atmosphere of the Kalahari, and as this current also, like that which blows over Sahara, is charged with little moisture and at the same time moves further and further from the point of saturation it lets fall no rain over the inland region towards which it blows. And even when the influence of the south-east trade-wind is felt in this area no rain is received in consequence, for that wind has previously been drained of its moisture by the mountains of the Cape region. The absence of rain is, however, to some extent compensated by the deposition of dew. The rapid radiation of heat in the desert causes a very great fall of temperature after the sun is down, so that sometimes frosts are generated, and a fall of dew is the consequence. Another characteristic of the desert regions is the generation at times of scorching winds, those of northern Africa (which blow from the south and are called in different localities *gebli* or *khamsin*) afflicting Egypt and the countries on the Mediterranean coast. All low-lying localities in tropical Africa both on the coast and in the interior have been found to have a deadly climate for Europeans, who are subject to be attacked by a malarious fever. The Atlantic coast within the tropics, particularly Senegambia, the most beautiful part of it, is the most fatal region. In the south the region free from this drawback rises to a higher latitude on the west coast than on the east, and the area within which the country is almost everywhere fairly healthy for Europeans and fitted for European settlements is represented by Sir Bartle Frere as roughly bounded by a line starting on the west coast at Cape Frio (about 18° 40′ S.), and rapidly descending till it approaches the tropic of Capricorn at lon. 20° E., then crossing the tropic about lon. 28° E., and again rapidly descending till it touches the coast a little to the north of the Tugela. The extent of this area is more than thirteen times that of Great Britain, or nearly one-third of that of Europe.

VEGETATION.—The centre of Africa, where the tropical rains are so abundant, possesses a remarkably exuberant vegetation. Dense forests prevail, consisting of giant trees with foliage so closely spread as almost to shut out the light, and the dense undergrowth makes the country almost impenetrable. In the Manyuema country, west of Lake Tanganyika, Livingstone found forests so

dense that the vertical mid-day sun could send down only thin pencils of rays into the interior. A rank luxuriance of creeping plants of every degree of thickness, from small cord to a man-of-war hawser, interlaces the stems and branches of the trees, so that only where a path is constantly used can a passage be obtained. When one of the giant trees falls across the path it blocks it breast-high; the fallen trunk soon becomes fenced with creepers, and it is no one's business to cut a path across it. The forest region is succeeded by an open pastoral and agricultural country. This pastoral belt extends, in the north, across the Soudan from Senegambia to Abyssinia; on the south, from Angola and Benguela to the Zambesi. This open pastoral belt is distinguished by a rich and varied flora. A special characteristic of the vegetation of the southern extremity of Africa is the remarkable variety, size, and beauty of the heaths, some of which grow to 12 or 15 feet and form miniature forests. Cycadaceæ and bulbous and orchidaceous plants, aloes, and other succulent plants also abound. The baobab or monkey-bread tree, first discovered by Adanson in Senegal, is found from the Soudan to Lake Ngami, and palms of one variety or another are diffused over almost every part of Africa. The date-palm is the special characteristic of the oases of the Great Desert, and has its home, according to Gerhard Rohlfs, in the Libyan Desert, in the oases of which alone it is still to be seen in a wild state. But throughout the Sahara it now forms the principal means of subsistence. The Kalahari Desert is not destitute of vegetation to anything like the same extent as the Sahara, but is largely composed of grassy savannahs and shrubby steppes. It has no oases, but affords nourishment to the flocks of nomads. The regions on the north coast as well as Egypt have an ancient celebrity for their fertility in grain. Wheat and maize are cultivated, fruit-trees also abound, and groves of oranges and olives distinguish the landscape. The castor-oil plant, the fig-tree, the dwarf-palm, and the lotus, formerly an important article of food, are characteristic forms. The common oak, the cork-oak, and the pine form the staple, and the cypress, myrtle, arbutus, and fragrant tree-heaths the ornaments of the woods. The pastoral tropical belt presents a different order of vegetation. Besides the baobab, the cabbage-palm, the oil-palm, the wax-palm, the shea-butter tree, the cotton-tree, the African oak, and the mangrove here prevail; rice and maize are cultivated; the principal fruits are the banana, papaw, custard-apple, lemon, orange, and tamarind. The prevalent plants of this district are also found in the fertile parts of Nubia. To the north-east of this region frankincense, myrrh, cinnamon, and cassia abound. The coffee plant is a native of the eastern coast, where it forms thick woods, and from which it is supposed to have been transported to Arabia. Abyssinia, though coffee and spices are native products, possesses generally from its elevation the vegetation of a temperate region. The swamps of the tropical region are covered with papyrus. The cassava, yam, pigeon-pea, and ground-nut are cultivated as bread plants.

ANIMALS.—In respect of its fauna the African region may be said to be bounded on the north by the Sahara, for this desert divides the northern coasts of Africa, in a zoological point of view, from the rest of the continent more

completely than the Mediterranean does these regions from Europe. On the other hand, the Arabian peninsula belongs by its fauna to the strictly African region. The fauna of Africa is to a very large extent peculiar, but is more akin to the Indian than to any other and is very far removed from that of South America. No part of the world is so rich in quadrumana as Africa, and all except a very few species are peculiar to this continent, though the genera are closely allied to those of Asia. They abound especially in the tropics, and the genus Troglodytes, peculiar to Africa, embracing the gorilla and the chimpanzee, is confined to the west tropical region. Carnivora are abundant, and in Africa the lion is the undisputed king of beasts, since the tiger is absent. Among rodent animals, which are remarkably well represented in Africa, those of the burrowing kind are particularly numerous, especially in the desert and steppe regions, where the surface of the ground offers little opportunity for shelter and scanty supplies of food. The family of the Muridæ nowhere else in the world includes so many genera and species as it does in tropical Africa. Among the Ungulata Africa is remarkable for the possession of three striped members of the genus Equus—the zebra, quagga, and dauw or peechi (Burchell's zebra). The Pachydermata are represented by no less than six genera, among which the wart-hog (Phacochœrus) is peculiar to this continent. The African elephant is different from, though closely allied to the Indian. Of antelopes, the most numerous of the ruminating animals of Africa, at least fifty species are considered proper to Africa, of which upwards of twenty are found within Cape Colony. The giraffe is found in the interior of Africa. The camel, though mentioned by Herodotus, is said to have been introduced by the Arabians. The cattle of Abyssinia and Bornu have horns of immense size, but extremely light. In Barbary and the Cape of Good Hope the sheep are broad-tailed; in Egypt and Nubia they are long-legged and short-tailed. Goats are in some parts more numerous than sheep. The ibex breed extends to Abyssinia. Edentata are found everywhere in Southern and Central Africa, but only in two genera, one of which is peculiar to this continent, while the other has representatives also in Asia. The birds of the north of Africa are almost identical with those of the south of Europe and the Asiatic countries bordering on the Mediterranean. Of those of the interior little is known. Many of the birds are famed for the brilliancy of their plumage, such as the sun-birds, bee-eater, roller, plantain-eater, parrots, and king-fishers. Among other characteristic African birds may be mentioned the ostrich, found nearly all over Africa, but especially in the desert; the guinea-fowl, which is not confined to the region from which it is named; the secretary-bird or serpent-eater, an inhabitant of southern Africa, which renders great service to the inhabitants by killing serpents; and the honey-guide cuckoo, another peculiar bird of South Africa, which points out the nests of bees. Reptiles, owing to the dryness of the climate, are comparatively few. The largest is the crocodile, which abounds in the great rivers and tropical lakes. There are several species of venomous serpents, including the horned viper. The chameleon is common. The rivers and coasts abound with fish of numerous species, and some of them of the most brilliant colouring. Insects are numerous. Among the more celebrated species

are the locusts, scorpions, tsetse, and white-ants. The last two insects are remarkably destructive. The tsetse-fly (*Glossina morsitans*), which is met with over extensive areas in southern Africa, inflicts a sting fatal to nearly all domestic animals, so that in the regions infested by it the inhabitants are precluded from the occupation of cattle-rearing. The mound-building white-ants (so-called) or termites are equally obnoxious, on account of their practice of penetrating into all kinds of woodwork and eating out the interior.

PEOPLE.—In Africa as in Asia language appears to afford the best guide for marking out the divisions of races, but ethnographers seem to be now agreed in referring the peoples having Semitic and Hamitic (as well as Aryan) languages to one race, the Caucasian or Mediterranean race. To this race belong in Africa three Semitic peoples, Abyssinians, Arabs, and Jews; the first settled in the land which gives them their name, the second spread as conquerors over the whole of northern Africa, the third established at various points all along the north coast. To the same race belong also the Egyptians proper, and the Berbers or Libyan race inhabiting the mountainous regions of north-western Africa, the plains further east, and the desert region west of about 30° E. lon., the home of the Tuaricks or Tuaregs. The Gallas and Somaulis in the eastern projection of Africa are also referred, on the ground of distant linguistic affinities, to the same race, but in this case there is more uncertainty. The inhabitants of the region stretching west by north from Adamawa on the upper Benue to the upper Niger are now regarded as forming a separate race called the Central Africans. They are distinguished from the true Negroes even by their external appearance, having a reddish-brown skin, and they are said to be a people of great activity. Their principal tribe is that of the Foulbehs or Fellatahs. The true Negroes inhabit the region commencing to the south of the Senegal and extending along the west coast to the Bight of Biafra, and eastwards across Africa to the slopes of Abyssinia, including Bornu and all the states of eastern Soudan, and also the wild and predatory Tibboos in the Great Desert east of the Tuaregs. The true Negroes have very marked physical characteristics; an oval dolichocephalic skull, protruding jaws, obliquely inserted teeth, swelling lips, broad flattened nose, short woolly hair, black or very dark skin, and projecting heels. Next to the south of the true Negroes come the Bantu tribes, whose northern limit begins at the Bight of Biafra and proceeds eastwards so as to include the region of the Nile lakes, and touches the Indian Ocean about the equator. The dwarf tribes on the Ogowe (the Fan tribes) and those observed by Stanley within the great northern bend of the Congo (a member of one of these tribes captured by him measured only 4 ft. 6½ in. in height) appear to belong to this race, while the Niam-Niam, another dwarf tribe at the sources of the tributaries received by the Nile from the south-west, seem to be more properly referred to the Negroes. The physical characteristics of the Bantus resemble those of the Negroes, but are not so pronounced. The colour of the skin is perceptibly lighter. In the south-east the Bantus are more or less mixed with the last independent race of continental Africa, the Hottentots, who, besides the three pastoral tribes of the Cape Hottentots, to the south of the Orange River, and the Namaquas and

Koranas beyond that river, include also the hunting-tribe of the Bosjesmans or Bushmen. The latter are another dwarf tribe, being only from 4 ft. 4 in. to 4. ft. 6 in. high.

RELIGION.—As regards religion the whole of northern Africa, including the whole region north of the Gambia in the west, the Soudan states and the Nile countries, as well as the east coast as far as Zanzibar, is Mohammedan; almost all the remainder of the continent heathen. Christianity has from an early period been the religion of the Copts in Egypt and of the Abyssinians, and has been introduced by missionaries at various points both on the coasts and in the interior of southern Africa. The stations in the interior are likely to be of importance not only for the immediate object with which they were founded, the Christianization of the natives, but also as bases of operation for the further exploration of the interior. Among the principal stations recently established in the interior are: one founded by the Church Missionary Society in the Kingdom of Uganda on the north-west of Lake Victoria Nyanza, at the capital of King Mtesa, whom Stanley claimed to have made a convert to Christianity; a station belonging to the same society at Mpwapwa about 150 miles west of Bagamoyo on the Zanzibar coast, and another founded in January, 1881, at Mamboia, about 40 miles east of Mpwapwa; a station founded at Urambo in Unyamwesi south of the same lake by the London Missionary Society; another founded by the same society at Ujiji on the eastern shore of Lake Tanganyika; and a third at Uguha north of the Lukuga on the western shore of the same lake; several stations on the lower Congo founded by what is called the Livingstone Inland Mission; a station named Livingstonia, in honour of the celebrated Scotch missionary and traveller, founded on Lake Nyassa by the Free Church of Scotland in 1875; and a station called Blantyre after the Scotch village that formed the home of the same missionary in his boyhood, founded by the Church of Scotland between the Shire and Lake Shirwa. A whole series of stations now exist between Lakes Nyassa and Tanganyika, and the two lakes are about to be connected by a road. The Lake Victoria Nyanza and Lake Nyassa missions have introduced steamers on these lakes. The former mission, however, is now in a far from flourishing condition in consequence of the hostility shown to them by the natives, and even by King

	Area in sq. m.	Population.
Dominions of the Khedive, ...	1,153,000	17,424,000
Tripoli, with Fezzan and Barca, ...	400,000	1,010,000
Tunis, ...	45,000	2,100,000
Algeria, ...	257,600	2,867,626
Marocco, ...	313,600	6,380,000
Sahara, ...	2,386,000	2,850,000
Upper Guinea and Soudan, ...	1,432,000	75,370,000
British Possessions in S. Africa (including Transvaal),	374,000	1,966,000
Orange River Free State, ...	43,000	75,000
Abyssinia, ...	128,700	3,000,000
Other parts of the Continent, ...	4,774,650	88,750,000
Madagascar and other islands, ...	241,730	3,892,000
Total (in round numbers),	11,550,000	206,000,000

Mtesa himself. All those already mentioned are Protestant missions, but the Roman Catholics also have entered the field. In 1879 missionaries despatched by the Archbishop of Algiers founded a station at Urundi on the north-west shore of Lake Tanganyika, and in the same year a Jesuit mission started for the Victoria Falls on the Zambesi.

POLITICAL DIVISIONS.—The table in the preceding page gives the area and population of the principal political divisions of Africa according to the most recent information.

THE DOMINIONS OF THE KHEDIVE.

The Khedive or Viceroy of Egypt is a sovereign tributary to the Sultan of Turkey but otherwise almost independent, and his dominions embrace an immense area in the north-east of Africa, including, besides Egypt Proper, Nubia, and the countries on the Nile and the right bank of Lake Albert Nyanza up to within a short distance of the equator, as well as large territories to the west of Nubia (Kordofan, Darfur, &c.), and a strip of coast in the east of Abyssinia. The population of this territory is as follows:—

Egypt Proper (1877),	5,517,627	Kordofan,	278,740
Nubia (including Taka),	2,000,000	Darfur,	1,500,000
Other parts of Egyptian Soudan and the equatorial provinces,			5,500,000

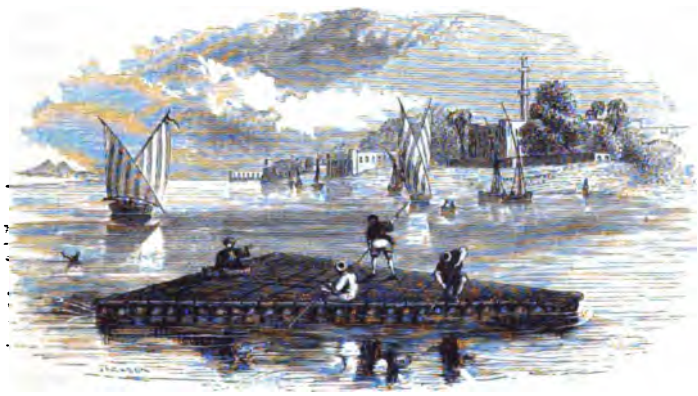
The total area of the Egyptian territory is about 1,153,000 square miles, but a large part of this is desert.

EGYPT.

Egypt (in Hebrew *Misr* or *Misraim*, from the son of Ham; in the language of the country in hieroglyphics, *Chem* or *Chemi*—which signifies the *black land;* and by the Arabs of the present day called *Misr*) is the name given to the country lying to the north of the last cataracts of the Nile, which are found at Assouan (Syene) in about lat. 24° 5′ N.

PHYSICAL FEATURES.—The inhabited portion of Egypt Proper is mainly confined to the valley of the Nile, which in the widest part (at the Delta) does not exceed 80 miles, while in other parts its width is only from 10 to 15, at the southern frontier only 2 miles. Beyond these limits are the Greater and Lesser Oases, and the Oasis of Ammon, all in the western region. The narrow valley above the Delta is bounded by two chains of hills, or rather by the edges of the plateau through which the river has worn its channel. The name of Libyan Hills is given to the range on the left bank, which slopes for the most part with a gentle declivity towards the river; and that of Arabian Hills to the range on the right, which has almost perpendicular sides, and attains its highest elevation (about 2500 feet) in the neighbourhood of the ancient Thebes (about 25° 45′ N.).

Here and there these ranges advance close up to the river bank, at other places receding in wide curves or bays. West of the Nile, in lat. 29° 20′ N., a deep sinuosity in the Libyan chain of hills forms the fertile valley of Fayoum (in Coptic, *Ph-iom*, the sea or lake), in the north-west and lowest part of which is the lake named Birket-el-Kerun, the level of which is perhaps not above that of the river. The eastern part of the Fayoum was anciently the site of the celebrated Lake Moeris, the embankments inclosing which were first recognized and traced in 1842, by M. Linant de Bellefonds. The Delta, so called from its resemblance to the Greek letter Δ, owes its existence to the deposits of alluvial matter brought down by the stream, and is a flat district intersected by a network of primary and secondary channels, and by numerous canals. The Nile has no tides, but a current at the rate of 2½ or 3 miles an hour constantly running towards the sea, and the stream is always deep enough for navigation. The water is usually of a blue colour, but it becomes a reddish brown during the annual overflow, which is the most remarkable phenomenon connected with the river, the phenomenon to which Egypt owes its existence as a habitable country. Its cause, long problematical, is now known to lie in the periodical rains which fall within the tropics. The territory to the east of the Nile, between the Arabian Hills and the much higher range which borders the Red Sea, is mainly a bare rocky mountainous region, including only here and there a few valleys possessing a scanty vegetation (principally shrubs) by which a small nomadic population is maintained. The only extensive level tract is at the Isthmus of Suez. The Sinaitic Peninsula, which belongs politically to Egypt, has already been described under Arabia. The principal or best known lateral valleys opening from the main valley of the Nile on the east side are the Valley of the Wanderings (of the children of Israel), leading from the neighbourhood of Cairo to the head of the Gulf of Suez, and that through which passes the road from Kenneh to Kosseir on the Red Sea. On the west of the valley of the Nile the country is mainly a desert plateau, in which the oases form a series of depressions parallel to the general direction of the valley of the Nile, and above 80 miles west of it. They are no less dependent than the rest of the habitable territory of Egypt on the Nile, for the water to which they owe their existence is



Pottery Float on the Nile.

partly derived by subterraneous percolation from that river. The Great Oasis, called, from its chief town, El Wah-el-Kharijeh, lies immediately west of the Thebaïd, and has a length of 100 miles. About fifty miles west of the northern extremity of this oasis lies the Wah-el-Dakhileh, 24 miles long and 10 miles broad. West by south from the Fayoum the date groves of the Little Oasis (Oasis parva), or Wah-el-Baharieh, display their unusual verdure. In this fertile spot artesian wells are numerous, and some of ancient construction have been discovered which have a depth exceeding 400 feet. On the road between this oasis and that of El-Dakhileh, inclining to the west, occurs half-way the Wah-el-Ferafreh, of small extent. West of Fayoum, and about 200 miles from the Nile, lies the oasis of Siwah, where the foundations of the once-celebrated temple of Jupiter Ammon may still be traced. The inhabitants of this secluded spot, though tributary to Egypt, are in language and manners wholly Libyan. The region of the oases terminates towards the north in the desert of the Natron Lakes. The deserts on the west bank of the Nile generally present to view uniform plains of gravel or of fine drifting sand.

Shop of a Retail Dealer, Upper Egypt.

Since Egypt embraces, as we have seen, two widely different regions, namely, the broad plains of the Delta and the comparatively narrow valley of the river higher up, so it naturally falls into two parts or divisions, namely, Upper and Lower Egypt. These were anciently regarded as separate kingdoms, denoted in hieroglyphics by different crowns or royal tiaras. Whenever they were united under the same rule the Pharaoh bore the title of "The Lord of the two worlds." But the lower part of the valley which includes the Fayoum differs widely again from the narrower portion higher up; hence the division into Upper, Middle, and Lower Egypt; or, to use the Arab names, Saïd or Mares (in Coptic, the South), Wustani, and Er Rif. The whole country appears to have been subdivided from the earliest ages into districts, or, as the Greeks termed them, nomes, each with a chief city. Upper Egypt, or the Saïd, was often named by

classic writers the Thebaïs; and Middle Egypt, divided into seven nomes, the Heptanomis.

GEOLOGY AND MINERALOGY.—The hilly region that separates Egypt from Nubia is composed of a kind of rock which differs from granite only in containing hornblende in place of mica, and which receives the name of *syenite* from Syene (the modern Assouan), where this kind of rock is first met with in descending the river. Northwards the syenitic region extends up the shore of the Red Sea to near the Gulf of Suez. In the middle portion of the land a sandstone formation destitute of fossils extends to the series of oases in the west. This sandstone is succeeded by a hard dark-red nummulitic limestone, which in the Nile valley begins about a day's journey to the south of Esneh and extends far to the north, lying mostly in horizontal strata. This rock furnished the material for the building of the pyramids. Here and there the limestone is overlaid by beds of sandstone, sometimes with a thickness of two hundred feet. In the lands bordering on the Nile the rocks are covered by the alluvium deposited during the inundations, and which consists of an argillaceous earth or loam, more or less mixed with sand. There are unmistakable signs of a sinking of the ground at the Delta. The Baths of Cleopatra at Alexandria are already submerged. In 1784 a lagoon was formed at Aboukir by an inroad of the sea, and the surface now occupied by Lake Menzaleh was once a thickly inhabited region, the sites of the towns and villages in which are still discernible under water. The minerals used in buildings, sculpture, vases, &c., were found in the rock formations of the country. Syenite and basalt were obtained from Assouan, sandstone from Silsilis, alabaster from Tel-el-Amarna, limestone from Beni-hassan and from Toora, breccia from the Kosseir Rood, porphyry from the quarries of Gebel-Dohan, emeralds from the mines of Gebel-Zabara, gold from the mines in Upper Egypt, iron from the desert plains of Nubia, and natron from the lakes in the north-east of the Libyan Desert. Bitumen, salt, and sulphur are also among the minerals of Egypt.

CLIMATE.—The atmosphere in Egypt is extremely clear and dry, the temperature regular and exceedingly hot, though the heat is tempered during the daytime for nine months of the year by the strong wind which blows from the north (the etesian wind), and which enables vessels to ascend the river against the stream. The winter months are the most delightful part of the year, the air being cool and balmy and the ground covered with verdure; later, the ground becomes parched and dry, and in May the suffocating khamsin, or simoom, begins to blow into the valley from the desert plains on each side of it, raising clouds of fine sand, and causing various diseases, until the rising of the river again comes to bless the land. It rains but rarely, except near the sea-shore; but at night the dews are heavy and the air cool and refreshing.

VEGETATION AND AGRICULTURE.—It would appear that, anciently as now, Egypt did not produce timber; the only trees, besides the palm and tamarisk, being the sycamore, fig, and acacia or gum-arabic tree, which last does not attain to any size north of Wady Halfa. The papyrus plant, once so important, is now nowhere to be found in the country. Of it was manufactured a paper,

which was supplied to all the ancient world. Besides the lotus or water-lily of the Nile, Egypt has always been celebrated for its production of wheat, barley, a great variety of the bean class, leeks, garlic, onions, flax, and for plants of the cucumber tribe. To the products of ancient times have been added the sugar-cane, cotton plant, rice, maize, indigo, and tobacco. There is always a surplus of exports over imports of cereals, and in good years this surplus is a large one. The principal of these exported grains are wheat and rice. An immense impetus was given to the cotton cultivation in Egypt as in many other countries by the American civil war, and raw cotton is still a leading export, though its amount of late years has been declining.

In spite of the fact that Egypt is a country in which at least two successive crops may be gathered in a year, agriculture is there in a very low state, the necessary consequence of the wretched condition and extreme poverty of those engaged in it, which again is chargeable on the arbitrary and oppressive character of the government. The operations of agriculture are regulated by the inundations of the Nile, on which alone, as already indicated, the country is dependent for the necessary moisture. On the subsiding of the water the land is found to be covered with a brown slimy deposit, which fertilizes the soil, while beyond the limits of the inundation there is, within the Nile valley, no cultivation whatsoever. The Nile begins to rise in June, and continues to increase till September, overflowing the low lands along its course, the waters being conveyed by canals where natural channels fail. The Delta then looks like an immense marsh interspersed with islands, villages, towns, and plantations, just above the level of the water. The water remains stationary for a few days, when it gradually begins to subside, until about the end of October the land is left dry again. The seed is then sown, and an artificial irrigation is continued in two different ways, viz., by means of the water-wheel, or by the instrument called *shadouf*. The latter apparatus consists of a leathern bucket slung at one end of a pole, which has a weight at the other, a contrivance by which the cultivator is enabled to scoop up the water considerably below his feet, and raise it with comparative ease to the mouth of a channel on a level with his breast. This mode of raising water is depicted on the walls of the ancient tombs of Egypt, and also in the sculptures from Nineveh, from which we learn that the "hanging gardens" of that celebrated city, were irrigated by means of this contrivance. Whatever means of irrigation be used the water is conducted by an inclined channel into the plantation, which has previously been divided into compartments of one or two yards square, by raising the mould into walls or ridges of five or six inches in height. Into these compartments the cultivator forms an entrance for the water by depressing a little space in the ridge or wall with the sole of his foot; and this overlooking of the channels of irrigation, and adjustment of the openings from one compartment to the other with the foot, is continued till the cultivator is assured by the growth of the plants that each compartment is daily and duly supplied with its proper quantity of water. To this peculiarity in the cultivation of the soil of Egypt, whether for corn or other production, allusion is made in Deut. xi. 10. The land is soon covered with green crops, which last till

February, and the harvest is in March. An elevation of the river of about 26 feet is essential to secure the prosperity of the country. Should the Nile rise above this height it does great damage, and involves the population in distress; while if it should not attain the ordinary height there is deficiency of crops and famine. The rate of the deposit of mud is supposed to be about six inches in a century.

A considerable extent of land was added to the cultivable area of Egypt under the last khedive, and various projects are now entertained for making still further additions of the same kind. It is proposed to complete a dam at the head of the Delta begun by Mehemet Ali early in the present century, but afterwards neglected. By this means several hundred thousand acres would be added to the surface suited for the cultivation of cotton, which requires much moisture exactly at the period when the Nile is at the lowest. It is also proposed to drain Lake Mareotis, which was laid under water by the British during the siege of Alexandria in 1801, and which lies at a depth of about ten feet below the surface of the Mediterranean. After being drained its bed will be freed from the saline incrustation remaining by being periodically inundated with fresh water from the Mahmudieh Canal.

ZOOLOGY.—Egyptian oxen were celebrated in the ancient world. The camel was introduced by the Ptolemies; horses and asses abounded. The giraffe is found on the southern borders; the hyena, jackal, ichneumon, and jerboa are common; and the hippopotamus and crocodile formerly reached the Delta, but they are now seldom seen below Lycopolis (*Siout*). Among the countless insects are the sacred beetle (*Scarabœus sacer*), the locust, and mosquito. The ibis, formerly so common, is now extinct.

MANUFACTURES.—The Egyptians still adhere to their ancient custom of uniting the followers of each business or profession into a guild or corporation, governed by their chief or sheikh, who acts, if need be, as their representative. These guilds are exceedingly numerous, as might be expected among a people whose social organization reaches to a remote antiquity. Of all these trades, however, very few can claim especial mention on the score of importance or singularity. Among these few we must place the business of the *mahm-al-farujy*, or keepers of egg-hatching establishments. A very steady heat (about 104°) is required for the success of this process, yet the keeper of the ovens never uses a thermometer, but is guided wholly by experience and practised sensation. The business of tanning also is one in which the Egyptians succeed perfectly, by a process peculiar to themselves. They make excellent morocco leather, which is goatskin dressed and dyed in a particular manner. The pottery of Egypt also deserves a word of praise, chiefly for the merit of the bardaks or water-jars. Coarse linen and cotton cloths, and sail-cloth are largely made in the country, and silk stuffs are manufactured to a less extent. The best artisans are to be found among the Copts, Greeks, and Armenians. In the larger towns manufactories on the European model (cotton spinneries, powder factories, &c.) have been set up, but their products cannot compete with those of European countries.

COMMERCE AND COMMUNICATIONS.—The commerce of Egypt has shown

a considerable apparent decline in recent years owing to the opening of the Suez Canal. Large quantities of Indian and other Eastern products which formerly passed through Egypt in transit to Europe now go through that canal direct to the European ports for which they are destined. The principal exports of Egyptian products are raw cotton, cotton seeds, and cereals, the principal imports woven fabrics and other manufactured articles and coal. More than half of the imports come from the United Kingdom, and much more than half of the exports are sent to the same country, and the countries ranking next in importance as sharing in the foreign trade of Egypt are France, Austria, Italy, and Turkey.

Fellah dressed in Haba, and Female wearing Face-veil.

Among the means of communication there is now a considerable railway system in Egypt, including a line up the Nile valley as far as Siout. Almost the whole system belongs to the state. Excellent water communication is afforded by the Nile and its branches, and by several artificial canals, among which is that through the Isthmus of Suez, the most important commercial canal yet constructed in the world. Its importance, however, is greater, as we have seen, for the international commerce between Europe and Asia than for the commerce of Egypt itself. The canal, too, is now entirely in foreign hands. It was constructed by a company, which paid to the Khedive of Egypt the sum of £3,360,000 for the right to construct it, and till 1875 the khedive himself held more than a third of the shares, but these shares were purchased in 1875 by the British government. The length of the canal is 92 miles, and its depth is sufficient to allow vessels drawing about 26 feet of water to pass through it in safety. Among the other canals on Egyptian territory the most important are a fresh-water canal (opened in 1863) connecting the Suez Canal with one of the branches of the Nile, and the Mahmudieh Canal, constructed by Mehemet Ali and named in honour of the Sultan Mahmud, connecting Alexandria (which it also supplies with drinking water) with the Rosetta mouth of the Nile. The number of private letters annually carried by the Egyptian post-office is equal to about one for every eleven of the population.

PEOPLE.—Of the inhabitants of Egypt those of the peasant class, or Fellahs, who appear to be descendants of the ancient Egyptians mixed with Arab immigrants, are the most numerous. Having embraced Mohammedanism they are

often called Arabs, though easily distinguished from the true Arab, who regards the Fellah with contempt. The pure Arabs in Egypt are mainly wandering Bedouins (of whom there are about 400,000), but a considerable number have adopted a settled mode of life, especially in Fayoum and still more in the province of Kenneh. The Copts, numbering perhaps 150,000, are probably the purest descendants of the ancient Egyptians, and their language (which did not cease to be spoken till after the Arab conquest of Egypt) afforded the means by which Egyptologists were enabled to decipher the inscriptions of the ancient Egyptian monuments. In religion they are, like the Armenians and some other Eastern sects, Monophysite Christians. They fill the posts of clerks, accountants, money-brokers, &c. The Turks, who form a privileged class and hold the principal offices under government, are estimated to number about 200,000. There are also Armenians, Berbers, negroes, and others, besides about 70,000 Europeans, the most numerous among whom are Greeks, and next in number Italians and Frenchmen. Slavery is still practised, and though, under a treaty concluded with Britain in 1877, the export and import of slaves are nominally forbidden, and in that year Col. Gordon, as pasha and governor of the Egyptian Soudan, was intrusted with extensive powers for the suppression of the slave-traffic in Egyptian territory, the success of the measures then adopted was only temporary and the traffic is said to be again carried on as actively as ever.

GOVERNMENT, REVENUE, &c.—The government of Egypt is nominally in the hands of the viceroy or khedive, who pays an annual tribute of 150,000 purses, or over £705,000, to Turkey; but the administration of the country is actually carried on at present under the supervision of the governments of France and Great Britain, each of which powers is represented by a controller-general. This arrangement, which came into operation by a decree issued Nov. 10, 1879, was made in consequence of the bad financial condition to which the country had sunk under the khedive Ismail (1863–79). An enormous debt had been incurred chiefly to French and British creditors, and as it had been contracted at high rates of interest and mainly expended on unremunerative public works, and in keeping up the state and gratifying the personal tastes of the khedive, the government was ultimately obliged to declare itself unable to pay the interest on the debt. After various investigations and arrangements for dealing with the finances of the country under the old government the khedive was deposed by the sultan, and his son Tewfik installed in his place, and under him the administration was put upon its present footing. The management of the debt is intrusted to a special commission composed of seven members, two English, two French, one Austrian, one German, and one Italian. By an agreement between the controllers-general and the debt commission the nominal annual revenue of the country is taken at £8,500,000, and provision is made that a small portion of any future surplus shall be applied to the extinction of debt. The bondholders have been obliged to consent to a reduction both of the capital of the debt and of the rate of interest paid on it.

CHIEF TOWNS.—The capital of Egypt proper and the dominions of the khedive is Cairo (Arabic, *el Kahira*, the Victorious), a city with a population

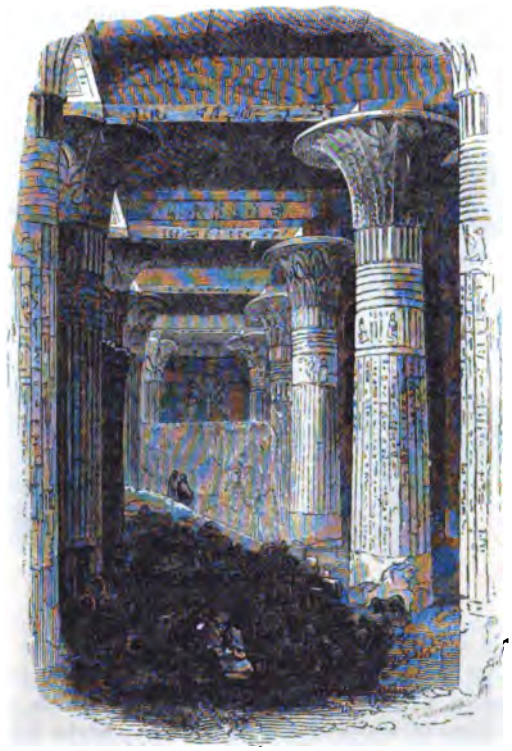
in 1877 of 327,000. It is situated on the Nile about ten miles above the place where the river divides, and as the houses are generally low (from one to three stories) it occupies a large extent of ground in proportion to its population. Formerly it was a purely Arabic town, having been founded by the Arabs in 638 A.D.; but it has been to a considerable extent Europeanized under the last khedive, whose ambition it was to make of his capital an Eastern Paris. It still preserves, however, in its labyrinth of narrow lanes, its flat-roofed houses without gables, chimneys, or window-panes, its large bazaars in which all kinds of Oriental wares are exposed for sale, its forest of minarets rising above the mosques on all sides, thoroughly Arabic characteristics; and with regard to the general aspect of the city as viewed from the eminence on which the citadel stands, it did not require the modernizing improvements already referred to in order to make that aspect a striking one, one of the grandest indeed that the East affords. For, besides the picturesque city itself, that eminence commands a view of the green plain watered by the Nile behind the city, the gigantic pyramids of Gizeh in the immediate neighbourhood, the pyramids of Sakkara further off, the white mountains of Mokattem and the graves of the caliphs, and the wide and dreary expanse of the desert. The crowds that throng the streets of the city are a chaotic mixture of Turks, Arabs, Armenians, Franks, Jews, Copts, Negroes, and among them an extraordinary proportion of blind persons, the people of Egypt being very liable to be afflicted with ophthalmia. The coffee-houses generally swarm with visitors smoking chibouques, which they fill with hashish or opium, and listening to music and story-tellers.

A Street in Cairo.

Next in size and importance to Cairo is Alexandria (Arabic, *Iskanderieh;* 166,000), at the north-western extremity of the Delta, founded by Alexander the Great in 332 B.C., in ancient times the capital of the Ptolemies, and under them, as well as for centuries after their fall, a celebrated seat of learning, now principally known as a seat of trade, and presenting in its external features a

curious mixture of Eastern and Western characteristics. Tantah (60,000), near the middle of the space between the two main arms of the Nile, and Zagazig (40,000), near the south-east of the Delta, are in no way remarkable; and Rosetta (16,000), at the mouth of that branch of the Nile which takes its name from that town, is chiefly celebrated as the place where the stone was found the inscriptions on which (in hieroglyphics, in a native popular dialect, and in Greek) supplied the key by which the inscriptions on the ancient monuments of Egypt could be deciphered.

HISTORICAL SKETCH AND REMAINS OF ANTIQUITY.—The Egyptians are the earliest people known to us as a nation. The beginnings of their ancient civilization cannot be referred to a later date than the beginning of the third millennium before Christ, and from that time there was a long succession of native kings, with dominions of varying extent, down to the time of the conquest of the country by the Persian king Cambyses towards the close of the sixth century B.C. With the rest of the Persian Empire it fell under the power of Alexander the Great, after whose death it was ruled over for three centuries by the Macedonian dynasty of the Ptolemies. In the year 30 B.C. it was conquered by the Romans and made part of the Roman Empire, and in 640 A.D. it was conquered by the Arabs. Finally in 1517 it was conquered by the Turks, on whom it has ever since remained more or less dependent. The viceroyalty now subsisting began with Mehemet Ali, a Turkish officer who, in the first half of the present century, after making extensive conquests in the regions to the south of Egypt (Nubia, Sennar, and Kordofan), finally broke with the Porte, and ultimately got himself recognized as Viceroy or Khedive of Egypt, and the dignity made hereditary in his family. The further accessions to the dominions of the khedive were made between 1872 and 1874, in which years the whole course of the Nile up to Lake Albert Nyanza and including the land of Unyoro to the east of that lake, the Oasis of Darfur to the west of Kordofan, and the whole of the Dankali coast to the east of Abyssinia, were added at least nominally



Interior of the Temple of Esneh.

to the Egyptian dominions. In the upper regions of the Nile the Egyptian authority is, however, mostly limited to the course of the river itself.

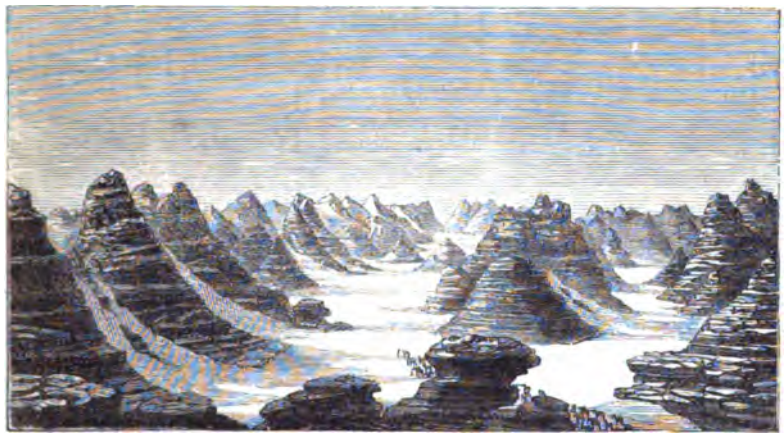
The Egyptian remains of antiquity are altogether of extreme interest, and some of them must be regarded as the most remarkable in the world. They belong to three periods, the first being that of the early dynasties that reigned at Memphis in Lower Egypt, the second that of the later dynasties of Thebes in Upper Egypt, and the third that of Greek and Roman times. From the first of these periods date, besides rock-cut tombs of the kings, which are to be found of all periods, the celebrated pyramids above Cairo, "the oldest, largest, and most mysterious of all the monuments of man's art now existing." The largest of all, that of Cheops at Gizeh, has a base 764 feet in length and a height of 480 feet. The monuments of the second period are infinitely superior in respect of architectural design, and are every way among the most magnificent works that have ever been erected. Their remains, the ruins of ancient Thebes, are to be found chiefly at the villages of Karnak and Luxor, about midway between Kenneh and Esneh, in about lat. 25° 40′. The largest and finest of these are the Ramesseion or Rhamesseion on the left bank of the Nile, so called after its builder Rameses the Great, who reigned in the fourteenth century before Christ; and the temple of Karnak on the right bank, the principal feature of which is the famous hypostyle hall of Manepthah, regarding which Fergusson writes, "no artist has yet been able to reproduce its form so as to convey to those who have not seen it an idea of its grandeur." The hall is subterranean, and the roof is supported by numerous rows of massive pillars, brilliantly adorned with coloured decorations. Light is supplied by means of a clear-story formed by raising the middle portion of the roof above the rest by two rows of pillars even loftier and more massive than the others. Many fine works of art have also been preserved with more or less completeness from the third of the periods above mentioned. These are chiefly at Edfoo (*Apollinopolis Magna*), on the island of Philæ at Assouan, and at Dendera (Tentyra), at all of which places remains of temples are to be seen. Royal tombs cut out in the rock are to be seen throughout the whole valley of Upper Egypt, and are among the most valuable of the remains that have come down to us on account of the

Court of the Great Temple of Edfoo.

immense amount of information which their sculptures and inscriptions convey to us regarding the arts, habits, and history of the periods to which they belong. The only other characteristic monuments of the ancient Egyptians are the monolithic obelisks which were to be found in front of almost all the old temples, and several of the tallest of which have been transferred to European capitals (principally Rome), one having now been erected on the Thames Embankment in London.

NUBIA.

Nubia is now merely a geographical term, the country so called being politically entirely incorporated with Egypt. It extends from the southern



Great Desert of Korosko.

frontier of Egypt proper to Egyptian Soudan (about 15° N.), and consists essentially of a narrow Nile-valley bordered by deserts, intersected by numerous occasional water-courses (*wadys* or *khors*). The eastern desert, called the Desert of Korosko, is rocky and stony; the western, occupying the great bend of the Nile in that quarter, and called the Bahiuda or Bayudah, rather of the nature of a sandy steppe, thinly covered in patches with mimosas and a sedgy grass. In the north there are several wild and craggy summits, not generally of any great elevation. The highest in the country, Soturba on the Red Sea, attains a height of about 7000 feet. In ancient times the Nile in Nubia overflowed its banks and fertilized the adjoining land, in the same manner as it still does in Egypt proper; but it no longer does so, in consequence of which the people of Northern Nubia, which is as rainless as Egypt itself, are entirely dependent for water on the water-wheel. The vegetation in this region is altogether extremely scanty, and consists chiefly of mimosas, date-palms, and the doum-palm, which here reaches its northern limit. The senna plant is also abundant here, and forms an important article of trade. South-eastern Nubia, on the other hand, is of an entirely different character. It is well watered by

the Atbara and the torrents descending from the mountains of Abyssinia, and has the kind of vegetation characteristic of tropical Africa—dense woods and broad pastures; and in addition to that it possesses an extraordinary variety of typical species of the African fauna, with which this part of the continent supplies most of the zoological gardens of Europe. The inhabitants of Nubia, and especially those between the Nile and the Red Sea (the Ababdeh, &c.), are a very fine type of men, belonging mostly to the Hamitic division of the Caucasian or Mediterranean race, but containing an admixture of Arabic and Negro elements. They are powerful, industrious, and of considerable intellectual ability; in their mode of life they are chiefly nomads. Their villages consist of conical straw huts (*tokuls*), or quadrangular dwellings built of branches of trees and covered with leaves. They rear fat-tailed sheep, hump-backed cattle, and above all camels, and grow *durrah* (*Sorghum vulgare*) and some *tef* (*Eragrostis abyssinica*). Dates and milk form the other principal articles of food. The principal towns are Berber (? 30,000), New Dongola or El Ordeh, and Korosko on the Nile, and Suakin, the terminus of a large caravan trade on the Red Sea. A railway intended to connect Assouan with Dongola has been begun.

In ancient times the civilization of Egypt extended into Nubia, and there are remains of ancient architecture at Kalabsheh, Ipsambool, and elsewhere. Among these are examples of rock-cut temples, of which there are none in Egypt proper. The region in the south-east between the Atbara and the great bend of the Nile is the ancient island of Meroë, the seat of an ancient kingdom under priestly control, which attained a high degree of power and made great advances in civilization. Its inhabitants (Æthiopians) seem to have been a mixture of Berbers and Negroes, together with a smaller number of Egyptians. The ruins of its capital, which bore the same name, are to be seen at Bekrauwiyah on the Nile. In the sixth century Christianity was introduced into the country, and from the seventh to the fourteenth century Nubia was a flourishing Christian kingdom. In the latter century the power of the Arabs and the influence of Mohammedanism began to prevail, and the kingdom broke up into a number of little states, which were all brought under the authority of Mehemet Ali the Egyptian governor in 1820.

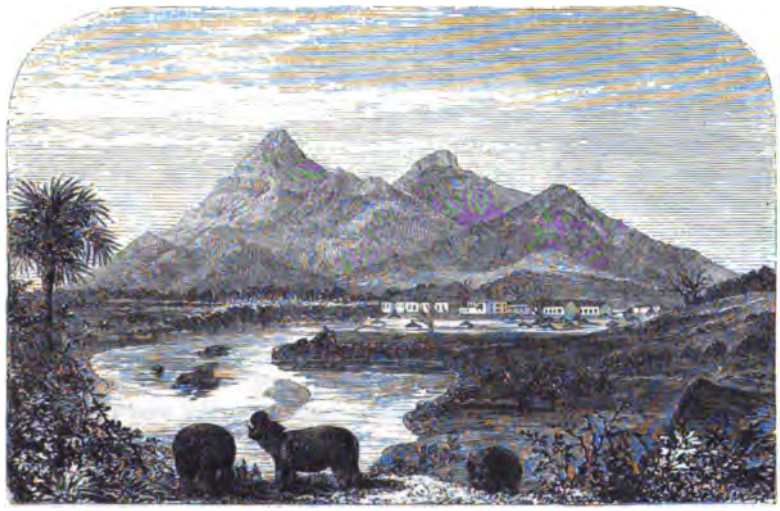
EGYPTIAN SOUDAN,

AND THE HIGHER REGIONS OF THE NILE.

Egyptian Soudan is the name now commonly given to the Egyptian territory immediately to the south of Nubia—Sennar, Kordofan, and Darfur. Over all these territories, as well as over the higher regions of the Nile, the power of the Egyptian government is being steadily consolidated by the establishment of military stations at various points and the improvement of the communications. A railway has been begun to connect Suakin with Khartoom, the telegraph has been extended to Darfur, and the old roads to that territory have been restored

under the supervision of English engineers; steamboats ascend the Nile regularly to Lado, and two steamers have been placed on Lake Albert Nyanza.

SENNAR, or SENAAR, is the name given to the tract inclosed between the White and Blue Nile. By the Arabs it is called the Island of Sennar (*Jeziret-Sennar*). The northern portion of this angular area is a flat and fertile district, pretty thickly dotted over with towns and villages, and inhabited by a very mixed population (principally a Negro-like tribe called the Funj), who support themselves by agriculture. The chief product is the kind of millet called durrah (*Sorghum vulgare*), the principal grain of tropical Africa, and one which, as we have seen, takes an important place among the food-stuffs of India. For



Mount Fazoklo, Highlands of Sennar.

this grain northern Sennar is the principal source of supply for all the Nile region, and even the Barbary States receive supplies of it from the same quarter. The district further to the south is more suited for pastoral occupations than for agriculture proper, and is mainly inhabited by nomadic Arab tribes; and going still further south we come between lat. 13° and 14° N. to a more mountainous region inhabited by tribes akin to the Negroes. East of the Blue Nile in these upper regions there is found an Arab tribe known as the Akalin Arabs, with remarkably light-coloured skins and beautifully proportioned limbs. The mountains are of granite and at first rise in isolated masses above the plains, but the groups become more and more frequent as we approach the highlands of Abyssinia. Amidst the products of denudation between the mountains iron and gold are to be found in abundance. Sennar, with about 12,000 inhabitants, has manufactures of weapons and other articles in metal, as well as articles in plaited straw, and Wad Medinah, with a population fully as large, is a place of considerable trade; but the most important town in the locality is Khartoom (45,000), near the junction of the White and Blue Nile, the seat of government

for the whole of Egyptian Soudan and the higher regions. It is an unattractive place, composed chiefly of low clay-built houses in narrow dirty streets, and its climate is very unhealthy for Europeans. Its importance is due to its position, which makes it the entrepot of the trade between the higher and lower Nile regions. Sennar has been subject to Egypt since 1820.

The highland region of Sennar terminates in the south-west about 11° 10′ N., and above that point the Nile flows for hundreds of miles through a vast plain with a gentle slope to the south, between low marshy banks, its course often encumbered by sedge and other kinds of vegetation, sometimes dense enough to form a serious hinderance to the navigation. This plain comes to an end a little below Lado, the fortress recently erected a few miles below the abandoned station of Gondokoro (about 5° N.), and about one degree above that point the navigation of the river is interrupted by a series of cataracts, beyond which the navigation continues uninterrupted to Lake Albert Nyanza. Almost the whole of this region is known as the *Seriba* district, from being studded over with traders' stations (*seribas*, literally, thorn-hedges), the traders being mostly of Nubian origin. The principal tribes in the district are the Shilluks, a branch of the Funj, furthest north on the left bank; the Denkas, on the opposite bank, and, further south, on both banks, a pastoral tribe rearing cattle of the zebu or hump-backed race, sheep, and goats; the Dyoor, further to the south-west, occupying the lower parts of the terraces watered by the streams between the Nile and the Bahr-el-Arab, a tribe remarkable for its skill in iron-smelting and smith-work; the Dor or Bongo still further to the south-west, a tribe which supports itself partly by agriculture, partly by cattle-rearing, fishing, and hunting, and conspicuous for the care shown by them in the construction of their houses; to the west of the Dor the Kredj, described by Schweinfurth as the ugliest race in the region of the Bahr-el-Ghazal; on the Nile itself the Bari round Lado; and higher up the Madi. The Unyoro, east of Lake Albert Nyanza, are, as already mentioned, still mainly independent.

KORDOFAN is a territory of about 36,000 square miles in extent, but with indefinite boundaries, lying to the west of Sennar. It consists almost entirely of savannah land, and is bounded on the east, north, and west by uninhabitable steppes. In the dry season, when springs and streams dry up, everything withers, but in the rainy season the surface becomes covered with a luxuriant carpet of grass. The mean elevation of the surface, which gradually rises towards the south and south-west, is about two thousand feet, and the highest summits of the isolated hills and huge rocks that rise above the general surface round the capital, El Obeid, do not reach 3300 feet. The population appears to depend largely on trade, which is principally in the hands of Arab tribes. The principal commodities are ostrich feathers, ivory, undressed ox hides, gum (which form the exports); and rice, sugar, soap, tanned hides, tamarinds, and salt (which form the imports). The undressed ox hides are exported to Cairo, and tanned hides are obtained from Bornu and Abyssinia. The tamarinds are imported in cakes chiefly from Darfur and are largely consumed in Kordofan. The gum of Kordofan is of excellent quality. About three out of every four of

the population are slaves. Along with Nubia and Sennar, Kordofan has been subject to Egyptian rule since 1820.

DARFUR is a territory of about 100,000 square miles in extent lying to the west of Kordofan, from which it is separated by an uninhabitable steppe region, sparsely grown with shrubs. The nucleus of the land consists of the Mountains of Marra, which extend (according to Dr. Nachtigal) for about four days' journey from north to south and about two and a half days' journey from east to west. Their highest summits reach a height of about 5600 feet. From these mountains a large number of wadys or periodical watercourses descend to the lower lands, principally in the south and west, which regions (including the mountainous core) are accordingly the best watered, the most productive, and the most thickly populated. The part of Darfur lying to the north-east presents indeed in many ways a complete contrast to the rest of the land. In the former district the soil consists to a large extent of a reddish-yellow sand which is very unproductive, and the only grain grown is *dukhn* or *duchn* (*Pennisetum typhoideum*), trees are few and stunted, and garden fruits of inferior quality, and the principal domestic animal is the camel; while in the latter district the soil is much richer, the grains grown include wheat (elsewhere a rarity in Central Africa, and here confined to the mountains), and durrah as well as dukhn, fruit-trees are present in great variety, a strong native tobacco, and also hemp, cotton, pepper, and bulbous plants are grown, and the domestic animals include excellent cattle, goats, and sheep. The tamarind-tree grows to a great size in Darfur, as in other parts of Central Africa; and near the eastern frontier the valuable baobab, which takes the place of a reservoir in that arid quarter. All the mountain gorges contain a ferriferous sand, which is used by the natives to make iron. The inhabitants of Darfur are partly native African tribes, partly Arabs. Their total number is estimated by Dr. Nachtigal at 4,000,000, but according to Col. Mason-Bey, who visited Darfur officially in 1875, this number is much too great, and the true number does not exceed 1,500,000, of whom about one-third are Arabs, and one-half Fur (or For, as it is spelled by Col. Mason-Bey), from whom the country takes its name. The latter are confined to the mountains and intervening valleys, and are described by the officer just mentioned as being in general in good circumstances, and bestowing an astonishing amount of care on the cultivation of their fields. The annexation of Darfur to Egypt took place at the time when the Egyptian government appeared bent on putting down the slave traffic. Of this traffic Darfur was one of the chief centres, and in consequence of the measures taken by the Egyptian governor of the southern provinces of the dominions of the khedive the Sultan of Darfur became involved in hostilities with some Egyptian troops, and this was made by the khedive an excuse for undertaking the conquest of the land. This was accomplished in 1874, and on New Year's Day, 1875, Darfur was incorporated with the Egyptian territories. The capital of Darfur is Fasher, on the east side of the mountains, about 2000 feet above sea-level.

TRIPOLI AND BARCA.

Tripoli (including Fezzan) and Barca form a territory in the north of Africa now administered as a portion of the Ottoman Empire. The boundaries, especially that on the south, are far from being definitely fixed, but the whole area may be roughly estimated at about 400,000 square miles. Some geographers include the oasis of Kufra to the east of Fezzan in the Tripolitan territory, but, according to a communication addressed by Gerhard Rohlfs to the editors of the *Erdbevölkerung*, this oasis is entirely independent. The total population of the territory is estimated at about one million, of whom about 300,000 belong to Barca. The coast-line, which is from 700 to 800 miles in length, has only one harbour, that of the town of Tripoli. The eastern part of the interior, mostly a continuation of the desert, partakes of its character, and contains large tracts of almost barren sands. In the south, however, it is partly traversed by the Black Mountains, an eastern offset of Atlas, which, descending in successive terraces, incloses many valleys and plains of considerable fertility. Farther to the west the surface becomes still more diversified, and presents scenery which is not deficient either in beauty or grandeur. By far the richest tract of Tripoli is that of the Mesheea, which stretches about fifteen miles along the coast, with a width not exceeding five miles, and has the capital nearly in its centre. The whole of this district is occupied with fertile fields, on which wheat, barley, millet, and Indian corn, besides madder, saffron, and other crops are grown, and with olive-yards, vineyards, and orchards, the last producing all kinds of southern fruits. From the porous nature of the soil there are no proper rivers in the country, but abundant rains fall from November to March, and are collected in numerous tanks and cisterns to provide against the droughts which prevail throughout the remainder of the year. From May to September the heat is intense, the sirocco often blows, and the thermometer rises as high as 92° Fahr. On the whole the climate is healthy. Fezzan is a desert region, partly sandy and partly rocky or stony (*hammada*), inclosing a number of oases, the principal of which is that of Mourzouk. The total number of villages in it is believed by Dr. Nachtigal not to exceed ninety, and the total population of these is estimated by the same traveller at 33,000, in addition to which there is a nomadic population equal to from one-fourth to one-third of that number. Barca consists of an oval plateau of about 1300 feet in height in the north, and in the south of a desert plain which descends to the northern depression of the Libyan Desert. The plateau, the ancient Cyrenaica, is covered with the remains of numerous ancient towns, and on its northern margin is tolerably well watered and well wooded, but elsewhere presents to view only naked rocks or stretches of pasture. The rural population of Tripoli and Barca consists chiefly of Bedouin Arabs and Berbers, the town population chiefly of Moors, with a considerable intermixture of Jews. In religion the Arabs, Moors, and Berbers are Mohammedans. The only town is Tripoli (about 30,000), a seat of considerable trade,

exporting the products of inner Africa, which it supplies with articles of European manufacture. It contains several ancient remains, among which the most important is a triumphal arch erected in the second century of our era to the Roman emperors Aurelius Antoninus and Lucius Verus. Tripoli and Barca have been dependent on Turkey since early in the sixteenth century, though at times the connection with the Porte consisted merely in the payment of tribute. Since 1835 they have been under direct Turkish administration, Barca being sometimes placed under the governor of Tripoli and sometimes under separate administration. Since June, 1879, Tripoli with Fezzan has formed one Turkish vilayet, and Barca another

TUNIS.

Tunis is a state of North Africa, between Tripoli and Algeria, now virtually under the control of France. Its total area is about 45,000 square miles, and the estimated population 2,100,000, or about 46 to the square mile. The north-west portion of Tunis, lying between the frontiers of Algeria on the west and the valley of the Mejerdah on the south and east, is traversed by a range of mountains which, entering from the west, spread over the whole district. These mountains, estimated at 4000 to 5000 feet high, are well covered with fine timber (the most beautiful tree being the mastic-tree), and inclose fertile valleys some of which are seven miles in breadth. To the south of the valley of Mejerdah another mountain chain, a direct continuation of the southern chain of Algeria, runs from south-west to north-east, and terminates in Ras Addar or Cape Bon. Between these mountains and the Gulf of Hammamet on the east stretches the extensive plain or plateau of Kairwan, which is more adapted for cattle-rearing than for agriculture. Further to the south we come to the Biled-ul-Jerid, the region which extends all along the southern slopes of the Atlas to the Atlantic, and which owes its name to the date-palm cultivation which is so extensively carried on within it. Literally the name means "land of the trees without leaves," the date-palm leaves being deprived of their pinnæ in the process of cultivation. A depression in the interior is formed by the salt-marshes of El Gharnis and El Kebir, which are separated from the Mediterranean only by the narrow Isthmus of Gabes. A project for piercing this isthmus and letting in the waters of the Mediterranean to these marshes, and also to the shotts of Algeria, seems likely to be abandoned on account of the expense. The climate of the coast is temperate, uniform, and healthy. Frost and snow are unknown. The sirocco is confined to the months of July and August. Agriculture is very much neglected, and large tracts capable of yielding productive returns remain in a state of nature. Nevertheless considerable quantities of wheat, barley, and maize are exported; and among the other crops are flax, linseed, indigo, cotton, sugar-cane, Indian hemp, tobacco, henna, coriander seed, besides all kinds of southern fruits, including olives and dates, the plantations of the latter tree being

so numerous as to furnish the principal subsistence of the inhabitants. Among the uncultivated products of the land the allied grasses known by the general name of *alfa*, which is the same as the Spanish esparto, cover the northern slopes of the southern chain of mountains in Tunis, as well as in Algeria, and have in recent years risen into importance as a material for paper-making, and another fibrous plant called *dis* (*Festuca patula*) is exported for the same purpose. The principal domestic animals are oxen, a kind of fat-tailed sheep, horses, and dromedaries, the last two of excellent quality. On several parts of the coast the fisheries, including those of coral and sponges, are valuable. The only minerals are lead ores, said to exist in various parts of the mountains, quicksilver, which

The Town of Kairwan, looking north.

is not worked, and deposits of saltpetre on the plateau of Kairwan. Salt is obtained on the coast. The manufactures consist chiefly of woollen fabrics, more especially burnouses and the red caps, which are known all over the Mediterranean; soap, earthenware, and ordinary and morocco leather. An intoxicating drink made from dates, and another made from the Indian fig, are in great favour with the people, not being forbidden by the Koran. The trade, both with the interior and with different parts of Europe (principally Marseilles, Genoa, and Leghorn, as well as the ports of the Levant), is of the same nature as that carried on in Tripoli, but more considerable in extent. Next after Tunis (with Goletta) the principal ports are Susa and Sfaks, on the east coast. The imports are chiefly from the United Kingdom. Among the means of internal communication railways now hold a place, the town of Tunis being connected by rail with several of the other chief towns in the neighbourhood. The principal line is one now in course of construction from Tunis to the Algerian frontier, a line belonging to a French company.

The population is composed of the same elements as that of Tripoli; but the Jews of Tunis are distinguished from those of the adjoining Barbary States by the peculiarity of their costume, which, in the women especially, is remarkable for its fulness and its brilliant colours. The government is a despotism, the ruler having the title of *bey*. From 1575 the suzerainty of the state has been claimed by Turkey; but the French having in the spring of 1881 invaded the state, under the pretext of punishing the Kroumirs, or Berber inhabitants of the mountains in the extreme north-west, for their inroads on French territory, compelled the bey to accept a treaty which made French authority supreme in Tunis. In this treaty the right is secured to France of occupying all such positions as the French military authorities deem necessary for the maintenance of order and the security of the coasts, the bey undertakes

The Bardo (Government Buildings) of Tunis.

not to conclude any international convention without a previous understanding with the French government, and the financial system of Tunis (previously, from 1869, under a European commission) is declared to be regulated henceforth by France in concert with the bey. The revenue is mainly derived from export duties, taxes and tithes on olive plantations, the monopolies of salt and tobacco, and stamp duties.

The only large town in the state is the capital, which has given its name to the state itself. It lies on the Mediterranean, at the extremity of a salt lagoon about 12 miles in circumference, connected with the Bay of Tunis by the narrow channel of Goletta, a town at the mouth of which, also called Goletta, serves as the port of Tunis. The interior of Tunis presents a labyrinth of narrow and unspeakably dirty streets, Tunis being one of those towns which have yet been but little touched by the hand of modern civilization. The palace of the bey (the Kasbah) is an imposing structure in the Moorish style. The government buildings are in the Bardo, a strong place flanked by towers, about two miles north-west of the town, in which there are also a polytechnic school and state prison. The ruins of ancient Carthage lie about ten miles to the north-west of Tunis, close to the country residence of the bey. The population is estimated at from 100,000 to 150,000.

ALGERIA.

Algeria, formerly one of the Barbary States, is now a French colony in the north of Africa, lying between Tunis on the east and Marocco on the west, and bounded on the south by the Desert of Sahara.

POLITICAL DIVISIONS.—The colony is partly under civil and partly under military administration, and a large part in the south, where the boundary is very indefinite, is not under any organized government. Since 1873 the limit of French authority in the south has been El Golea, in about 30° 35′ N., and 3° 10′ E. The following table shows the area and population of the divisions under civil or military administration, as they stood at the census of 1877:—

	Departments under Civil Administration.			Divisions under Military Command.		
	Area in sq. miles.	Population in 1877.	Pop. per sq. mile.	Area in sq. miles.	Population in 1877.	Pop. per sq. mile.
Algiers, ...	3,192	485,338	152	37,414	587,269	16
Oran, ...	5,928	416,465	70	27,316	236,716	8
Constantine, ...	6,940	414,714	60	42,121	727,124	17
Total Algeria,	16,060	1,316,517	82	106,851	1,551,109	15
				16,060	1,316,517	
			Grand Total,	122,911	2,867,626	23

According to the policy at present pursued the area under civil administration is being rapidly extended, and in 1880 the total area so administered was 42,654 square miles, with a population of 2,338,434.

PHYSICAL FEATURES.—The coast-line is about 550 miles in length; it is steep and rocky, and though the indentations are numerous the harbours are much exposed to the north wind. The country is traversed by the Atlas Mountains, two chains of which—the Great Atlas, bordering on the Sahara, and the Little, or Maritime Atlas, between it and the sea—run parallel to the coast. The former attains a height of about 7000 feet. The interval is occupied by a plateau, having a breadth in the west, its broadest part, of about one hundred miles, which gradually diminishes eastwards to about half that breadth. This plateau is dotted at intervals with depressions, which in winter (during the rains) contain shallow salt lakes without issue (*shotts*), but in summer are covered only with a saline deposit, having the appearance of new-fallen snow. By the draining of two of these shotts, one not far from Bona and another near Constantine, about 84,000 acres of good land, an area larger than the county of Linlithgow, have been gained for agriculture. The streams of the plateau, with one exception, the Shelif, terminate in these issueless lakes, and like them are only temporary. The latter character belongs indeed to almost all Algerian rivers, which in winter are deep rushing torrents, but in summer are either quite dry or

reduced to fordable streams. The country bordering on the coast, called the Tell, is generally hilly, though in some places a flat and fertile plain extends between the hills and the sea, and the hills are everywhere intersected by fruitful valleys. The principal maritime plains are the Metijah, behind Algiers, the plain of Oran, and that of the Shelif. In the country south of the Great Atlas, the Algerian Sahara, there is a continuation of the depression of Tunis, which, according to the observations of M. Roudaire, attains in its lowest part a depth of about 130 feet below sea-level, and which, as in Tunis, is partly covered with shotts. Round these shotts the strata in the lower parts of the depression are saturated with water, and the land has been dotted with numerous artificial oases by the sinking of artesian wells to bring this water to the surface. The principal oases of the Sahara region are El Wad, Tuggurt, and Wargla, in all of which, as indeed in almost all the oases of the region, numerous artesian wells have been sunk. The temperature varies with the locality. In the Sahara the heat in summer is always excessive, but in many parts of the coast the temperature is moderate and the climate so healthy that Algeria is gaining favour as a winter resort for invalids. The mean temperature in Algiers is about 66°·5, the average of the hottest month is 83°.

A Street in Algiers.

AGRICULTURE AND VEGETABLE PRODUCTS.—Of the cereals grown in Algeria by far the most important is barley, and the next in importance wheat. The other grain crops are oats, sorghum, and maize, besides pod-fruits. After the various kinds of grain the olive is the most important object of cultivation in the country, and the product of this tree competes successfully with the oil of Provence. The cultivation of fine sorts of vegetables occupies a great deal of the attention of the colonists in the vicinity of the town of Algiers, and there is a very considerable export of early vegetables, especially potatoes and pease, for the supply of the London and Paris markets. All kinds of fruit are now receiving increasing attention, and an export trade in fresh fruits has been developed. The growth of cotton is declining. Tobacco, on the other hand, is becoming every year a more important agricultural product, and the same is true of wine, large purchases of land having been made in recent years to be laid out in vineyards by French wine-growers whose estates in France had been devastated by the phylloxera. The quality of the wine is only middling, but according to the report of M. Dejernon, professor of agriculture in the Basses-Pyrénées, who was sent by the French minister of agriculture to inquire into the

subject, this is solely due to bad cultivation and bad processes of manufacture; the soil of Algeria being in his opinion admirably adapted for vine-culture. The production of raw silk is also on the increase, and so also is that of flax, hemp, and China-grass (*Bœhmeria nivea*). The cultivation of the date-palm is being extended very rapidly by artificial irrigation. The valuable fibre known as *alfa*, mentioned in the notice of Tunis as a product of that territory, covers in Algeria an area of at least 15,000 square miles on the plateaux on the north side of the Great Atlas, and is becoming a more valuable export every year. Agriculture in Algeria often suffers much from the ravages of locusts. Another great enemy that settlers on fresh land have to deal with is the dwarf fan-palm (*Chamærops humilis*), which is found almost everywhere in Algeria, and is extremely difficult to extirpate, but by way of compensation this small tree affords several materials for industry. Its stiff leaves are capable of being used for all kinds of plaiting, and yield a fibre which is largely exported under the name of *crin végétal* and is used as a substitute for horse-hair.

The forests of Algeria, which are almost confined to the Tell, form one of the principal sources of wealth of the colony, and engage the constant attention of the government, by far the greater part of them belonging to the state. They are estimated to cover an area of about 8800 square miles, but have suffered greatly from the devastations of the natives, who (as in some parts of India) regularly burn down large tracts before the rainy season in order to make the grass grow more abundantly and to render it more easily accessible to their flocks. Stringent measures have recently been taken with the view of repressing this practice, and are said to have had the best results. Of the trees of the Algerian forests the most important in respect of the area they occupy are the cedar of Lebanon, which is found at the greatest elevations, the Aleppo pine, the most abundant of all, the holm-oak, and the cork-oak, the last chiefly in the province of Constantine, where it is sufficiently plentiful to make Algeria the rival of Spain in the production of cork. Of trees found in less abundance the most valuable are the kermes-bearing oak, the mastic, juniper, carob, ash, elm, and wild olive. Of late much has been done by the government in the way of introducing foreign trees, especially the Australian *Eucalyptus globulus* and the tallow-tree (*Stillingia sebifera*). The eucalyptus, as well as Casuarinæ, cedars, and other trees have been planted successfully in unhealthy localities to make them habitable.

ZOOLOGY.—Among the domestic quadrupeds of Algeria the horse occupies the first place. The Algerian horse is slender, light, and sinewy, and hence best adapted for racing and for military purposes. The mule, which the dry and hot climate suits well, is the animal most largely used as a beast of burden. Horned cattle are remarkably abundant, but of indifferent quality. Sheep form almost the sole wealth of the most southerly tribes skirting the desert. Ostrich farms have been successfully established. In the marshes of Oran many leeches are reared; and the red-coral fishery on the coast is important. Predatory carnivorous animals are diminishing in number the further colonists advance into the interior.

MINERALS.—The mineral wealth of Algeria is known to be very considerable, and is now being turned to account to a greater and greater extent. All metals except gold, but more especially iron and copper, are found in great abundance in the bowels of the Algerian mountains. The iron mines of Ain-Mokra near Bona have long been worked, and more recently those of Beni Saf in the west, nearly opposite the island of Rachgoun. Both mines are rich in magnetic iron ore, especially those of Beni Saf, where it is worked to a great extent in open quarries near the sea. The copper mines are also worked to a considerable extent, and lead, silver, sulphur, zinc, and antimony are not entirely neglected. Among other kinds of minerals there have been discovered immense beds of excellent lithographic stone near Oran, and the famous marble with which the ancient Romans adorned their temples has been rediscovered in the Kleber Mountains in the province of Oran, and the beds of it have been found to be so extensive as to contain as much marble, it is said, as all France and Italy together. There are several mineral springs, and the ruins of baths and temples near them prove that they were known to and used by the ancient Romans. The principal spring at Hamman Meskhutine in the province of Constantine, has a temperature of 95° Cent. (203° Fahr.).

MANUFACTURES, COMMERCE, AND COMMUNICATIONS.—The manufacturing industries of Algeria are naturally unimportant. They are confined to the coast towns, and consist chiefly in the making of morocco leather and the weaving of carpets, muslins, and silks. The trade of Algeria has greatly increased under French rule, and more especially since its products were admitted into France duty free, which they were for the first time in 1851, and since the ports of Algeria were opened to all nations in 1865. France, Spain, and England are the countries with which the trade is principally carried on, and three-fourths of the whole trade is with France. The exports from this last country to Algeria are woven fabrics of all sorts, wines, spirits, sugar, and articles of dress, besides cereals and coffee from its other colonies. The imports which it receives from Algeria are olive-oil, raw hides, wood, wool, and tobacco. Spain furnishes fruits and oils, and receives woven fabrics. England furnishes coal, iron, and metal wares, and receives cereals, cattle, and alfa. The average value of the imports is about £8,000,000, of the exports £6,100,000. Besides Algiers the principal ports are Bona, Philippeville, Bougie, Shershel, Tenes, Mostaganem, Oran, and Nemours. French money, weights, and measures are generally used in the towns. A few railways have been opened in Algeria, the principal lines being from Algiers to Oran (264 miles), and from Philippeville to Constantine. Of the lines now in course of construction one is intended to cross the Little Atlas (from Arziou to Saida), so as to facilitate the conveyance of alfa from the plateaux to the coast as well as that of the wool from the flocks of the nomadic Arab shepherds who inhabit these plateaux. But the most ambitious project of this kind is one for the construction of a railway to connect Algeria and Senegal with the interior of the Soudan. Various exploring expeditions have been sent out in connection with this scheme with results partly favourable. The number of letters annually carried by the post-office is equal to about two per head of the

population, and the number of telegraphic despatches is equal to about one for every four.

PEOPLE.—The two principal native races inhabiting Algeria are Arabs and Berbers. The former, who inhabit chiefly the southern parts, are mostly true nomads, dwelling in tents and wandering from place to place. A large number of them, however, are settled in the Tell, where they carry on agriculture and have formed numerous villages. The Berber race, here called Kabyles, are the original inhabitants of the territory, and still form a considerable part of the population. They are mainly distributed over the mountainous parts of the province of Constantine, but are not wanting in the plains and in the other provinces. Part of them have already got mixed up with Arab tribes, and this

General View of Algiers.

amalgamation is still going on. Among the less numerous races that inhabited the land before the French occupation, and still found there, are the Moors, a mixed race, partly descended from Arabic ancestors and partly from the ancient Mauretanians. They live in the towns and villages on or near the coast, and earn a scanty livelihood as petty tradesmen or mechanics. The Jews form a small but influential part of the population. Till 1865 they were excluded from public offices, but an act passed in that year declared both Mohammedan and Jewish natives entitled to all the prerogatives of French citizens on placing themselves completely under the civil and political laws of the French, and the Jews have shown a great readiness to do this. Except the Jews all the native races of Algeria are Mohammedans. At the census of 1877 the settled population of the colony numbered in all 1,352,831, and the nomadic 1,514,795. The former section of the population was composed of 64,512 Frenchmen born in Algeria, 130,260 natives of France, 962,146 native Mohammedans, 33,506 naturalized Jews, 4020 naturalized foreigners, and 158,387 foreigners (three-fifths of them Spaniards) not naturalized.

GOVERNMENT.—Algeria has been regarded as a French possession since

1830, in which year a French expedition was fitted out against it in order to put an end to the piratical practices of which the Algerians had been guilty for at least three hundred years before that date. The actual conquest of the country occupied many years, however, and it was not till 1847 that the Arab chief Abd-el-Kader, who had led the resistance to the French invasion, surrendered. The government of the colony is now in the hands of a civil governor-general. Four kinds of taxes are levied on the natives: the *achour*, a tithe upon cereals; the *hockor*, the rent of the land (not levied generally); the *zekkat*, an impost upon cattle; and the *lezma*, a sort of tax upon capital, levied only on the nomadic tribes of the Sahara. All the taxes are levied in money. Attention is given by the government to the spread of education. Both French and Arabic-French schools are increasing in number, and various establishments for higher education, including a prosperous lyceum at Constantine, have been instituted. The military expenditure and the expenditure for the administration of justice and public worship, are included in the general budget of France. Algeria is represented both in the senate and chamber of deputies of the mother country.

Constantine.

CHIEF TOWNS.—The capital of the colony is Algiers (53,000), situated on the coast about the middle of the coast-line, and consisting of an old town standing on an eminence, the crowning point of which is the Casbah, or ancient fortress of the deys, and a modern town handsomely built on the lower ground. On the side of the sea it is strongly defended. Its port has been improved at great expense by the French. Oran (41,000) and Constantine (40,000), the other two capitals of departments, are both likewise coast-towns, the former in the west, the latter in the east. The former is a strongly fortified town with a quite European aspect, and its port Mers-el-Kebir, about five miles to the north, has one of the finest harbours on the north African coast. The latter is chiefly remarkable for its striking and picturesque situation, occupying as it does the summit of a lofty mass of grayish-white limestone, which sinks precipitously down on all sides, and on three sides is washed by the foaming waters of the Wed Rummel. The town and neighbourhood are rich in remains of ancient Roman structures.

MAROCCO.

The Empire of Marocco or Morocco (the ancient *Mauretania*) is a state occupying the north-west extremity of Africa, and known to its inhabitants only by its Arabic name, *Moghreb-el-aksa*, the Extreme West. Its boundaries towards the desert are, like those of the other states of Northern Africa, very indefinite. Large tracts in this quarter are quite uninhabitable, and even in the habitable regions, in which nomadic tribes herd their flocks, the tribute claimed from them by the ruler of Marocco is very irregularly paid, so that the authority of that ruler is almost nominal over nearly two-thirds of the area assigned as his dominion. The whole of that area, including the Oasis of Twat in the south-east (lat. 27° N.), which stands to Marocco in a very loose political relation, is about 313,000 square miles. The maritime region, sometimes called, as in Algeria, the Tell, has an area of about 76,100 square miles (one-sixth less than Great Britain) and contains at least five-sixths of the total population, the density being about 70 to the square mile. The total population (including that of Twat) is estimated at 6,370,000.

PHYSICAL FEATURES.—The most remarkable natural feature of this country is the great chain of mountains extending through it from south-west to north-east. This chain, the High Atlas, commences on the Atlantic coast at Cape Ghir, and appears to attain its greatest elevation in Mount Miltsin (above 12,000 feet), south-south-east of the city of Marocco. About 5° 40′ E. it sends off to the south-south-west another chain which incloses the head-waters of the Sus, and still further to the east we come to a mountain ganglion where, according to Gerhard Rohlfs, the High Atlas changes its direction. Several series of mountains proceed in different directions from this centre, but those proceeding to the east and south do not form regular mountain chains, but rather successions of isolated mountains and rocky heights, while the true continuation of the High Atlas bends round towards the north, and terminates on the Mediterranean in Cape Deir, but before doing so sends off to the west the northern maritime chain now called Er-Rif or the Rif, and formerly the Atlas Minor. The general height of this latter chain is from 2500 feet to 3500 feet. The inner slopes of the High Atlas descend in a series of terraces to the cultivable land in the west, but the outer slopes, towards the desert, are extremely precipitous. The northern slopes of the Rif are steeper than the inner slopes of the High Atlas, but along their base also there extends a strip of fertile land, the only exception being formed by a tract known as the Angad, traversed by the middle course of the Muluya, a tract often barren from deficient rainfall, but covered with vegetation of one kind or another as often as the rain falls in due time and in sufficient abundance. Of the rivers of Marocco those flowing from the north side of the Atlas have the shorter course, but are well supplied with water; those running south extend much farther, but are dry in summer. The Wady Draa on the south side has a course of 700 miles, but the whole of that portion of its bed in which it flows

westwards is periodically quite dry. Lake Ed-Debaïa, formed by the floods of the Draa, is reported to be very large; but it disappears annually, and gives place to richly cultivated fields. The coast offers few good harbours; of these Tangier and Mogadore, or Sweira, are the best; the rest are but open roadsteads at the mouths of rivers. The climate west of Atlas is much more temperate than might be expected under such low latitudes. This is due to the circumstance that the lofty summits of the Atlas, covered in some parts with perpetual snow, intercept the hot winds from the deserts of the interior, so that the equable and refreshing sea-breezes prevail throughout the year. Hence the extremes of temperature lie within moderate limits, the thermometer rarely falling below 40° Fahr. in the winter, while it does not rise above 95° in summer. In the region east of the mountains intense cold is felt in winter, while in summer the heat of the plains is insufferable.

NATURAL PRODUCTS, AGRICULTURE, &c.—The flora of Marocco includes the esculent oak (*Quercus Ballota*) and cork oak; in the higher regions of the Atlas the cedar and Aleppo pine, with many varieties of oxycedrus and juniper yielding fragrant gums; also the date-palm and the dwarf-palm east and south of the Atlas; and the *argan* (*Argania Sideroxylon* or *Elæodendron Argan*), a tree which grows in south-western Marocco between Wady Sus and Wady Tensift (lat. 20° and 32° N.), and nowhere else in the world, and which yields from the kernel of its fruit an oil largely consumed by the inhabitants. Its timber is so close in the grain as to sink in water. The agriculture of Marocco is in the lowest possible condition, and the annual production is calculated barely to supply the wants of the country, though with proper cultivation and under an enlightened government Marocco might be one of the most productive countries in the world. The cereal crops are durrah, wheat, barley, and maize, the first-mentioned constituting the chief support of the population, though beans, the esculent arum, and even canary-seed are much eaten by the poorer classes. The vine grows wild, and is also cultivated near towns both for the sake of the fresh grapes and raisins and for the sake of the wine, in the use of which the people are apt to indulge immoderately; and tobacco, hemp, and cotton are also found both wild and cultivated. Indigo also grows wild, and the other vegetable products include capers, truffles, and archil. The animals, both wild and domesticated, are the same as in Algeria. The extent of the mineral wealth possessed by Marocco is not known with any accuracy. Copper, iron, and lead are present in abundance; antimony, silver, and gold are also found (the gold in the rivers of the south), and among other mineral products are sulphur, saltpetre, salt, and fuller's-earth.

MANUFACTURES AND COMMERCE.—In general, among the rural population, each family supplies all its own wants. In the towns, however, some manufactures still preserve their old celebrity. Fez makes and exports great quantities of the cloth caps which bear the name of that city. The tanners of Mekinez have a great reputation; and those of Marocco can render the lion's or panther's skin as white as snow and as soft as silk. This is done by means of two plants unknown to European tanners. Of the fine morocco leather Fez

furnishes the red, Tafilelt the green, and the city of Marocco the yellow. The Marocco carpets, so much esteemed in Europe, are made chiefly in the province of Ducalla.

The commerce of Marocco may be classed under the heads of commerce with the East, carried on by means of the caravans to Mecca, which have at once a mercantile and a religious character; with Soudan or Negroland, across the Great Desert; and lastly, the maritime trade with European states. From the East are brought silks, perfumes, spices, cotton, &c., for which are exchanged cochineal, indigo, skins, fine leather, woollen cloths, and ostrich feathers. From the Soudan are obtained ivory, gold-dust, ostrich feathers, asafœtida, gums, Guinea pepper, indigo, and slaves. Of the whole of the commerce with Christian states five-sixths in amount is carried on with Great Britain. Five cities, namely, Fez, Marocco, Mekinez, Rabat, and Tetewan or Tetuan, have mints, and coin gold, silver, and copper.

PEOPLE.—The elements of the population of Marocco are the same as those of the North African states generally, namely, pure Berbers (here known as Amazirghi), pure Arabs, mixed Arabs and Berbers (the race generally known as Moors), Jews, and Negroes from Central Africa, as well as mixed offspring of Berbers and Negroes, the last generally sprung from the harems of the great, since the common Arab seldom marries a woman of Negro race, and the Berber would disdain to do so. In physical appearance the pure Berber and pure Arab have a strong resemblance to one another. Both have a somewhat bronzed complexion, a European type of face with little beard or whisker, and both are of slender, sinewy, muscular frame. What chiefly distinguishes them is their language, although each has naturally borrowed a good many words from the other. The language of the Berbers is the same as that of the Tuaregs of Sahara, and is heard even in the Oasis of Jupiter Ammon; but the Berbers of Marocco have no alphabet, which has long been possessed by the Tuaregs. The religion of both Berbers and Arabs is Mohammedan, and the sherifs, or descendants of Mahommed, are here a peculiarly privileged class, almost as much so as at Mecca itself. The high-sherif ("the Marocco pope") has his residence at Wazan. The majority of the villages are composed of tents, and are then called *duars*, villages of houses being distinguished as *chars*. The tents are made of camel's hair or the fibre of the dwarf-palm, and in form resemble a gable-roof, which is no doubt the same form as that of those of ancient Numidia, which Sallust likened to inverted ships. The position of women among the Berbers of Marocco is a higher one than among the Arabs, but throughout the country the women go unveiled and are subject to fewer restraints than in many other Mohammedan countries. Monogamy is the rule, polygamy a rare exception. The civilization of Marocco has sunk to a low condition. The education given at the schools in the chief towns, and completed at the University of Fez, does not go beyond the theology of the Koran. The public libraries, once famous, are now dispersed; true science is unknown; and whatever monuments of art are to be found in the kingdom point to the time when literature and art flourished under the Arabian dynasties in Spain. Music is the only art for which the

Moors are said to manifest a decided taste, but they have not as yet arrived at any proficiency in it. The Jews of Marocco, numbering in all perhaps 200,000, are a despised and oppressed race, and are confined to certain quarters (*milhas*) in all the towns, as they were in most parts of Europe in the middle ages, and till recently in other parts of Northern Africa. Some of them are descended

Street in Tangier.

from those who in former times were driven out of Spain, and by them Spanish is still spoken, by the others only Arabic, or sometimes the language of the Berbers.

GOVERNMENT.—The sovereign or Sultan of Marocco, styled by Europeans emperor, bears the title of Emir el Mumenin, or Lord of the True Believers. He is ordinarily called by his subjects simply *Seïd-na*—our Lord. He is absolute in the strictest sense; the lives and properties of his subjects are at his disposal; from him alone proceed the laws, which he makes and unmakes at his pleasure. The imperial revenues are derived from arbitrary imposts on property, from duties on imports and exports, from monopolies, and from fines or confiscations. The

military force maintained by the sultan does not ordinarily exceed 20,000, of whom half are blacks. Spain has for centuries possessed in Marocco four strongly fortified places, the so-called Presidios, namely, Ceuta, Peñon de Velez, Alhucemas, and Melila.

CHIEF TOWNS.—The capital of Marocco is Fez, a town with a population estimated at 150,000, and occupying a very picturesque situation between two hills crowned with the remains of old fortifications. Seen from either of these eminences the whole town, divided by a stream into an old and a new town, is spread out before the eyes of the spectator, presenting to view numberless flat-roofed white houses, surmounted here and there by green cupolas, slender minarets, and battlemented towers, intermixed with gigantic palms and other lofty trees. Seen from within the prospect is not so attractive, for in respect of dirt and disorder Fez is the rival of Tunis. Mekinez (45,000–50,000), the summer residence of the sultan, situated about forty miles west of Fez, lies in the midst of olive plantations, has broad streets plentifully enriched with foliage, and altogether presenting an agreeable contrast to the interior of the larger city. Marocco (about 50,000), in the south-west of the region north of the Atlas, is also an occasional residence of the sultan, but has declined more than any other city in the empire from a position of former grandeur. Whole quarters once covered with houses and other buildings are now occupied by enormous gardens. The seaport town and fortress of Tangier (20,000), on the north coast opposite Gibraltar, was in the possession of the English for a short time in the seventeenth century, but was abandoned as expensive and useless.

WESTERN AFRICA AND SOUDAN.

SENEGAMBIA AND UPPER GUINEA. Under these names may be included the whole of the maritime region extending from the Senegal in the north to the Ogowe in the south. Senegambia, which takes its name from its two chief rivers, the Senegal and the Gambia, extends from the former river to the Pongo (about 9° N.), and Upper Guinea may be held to embrace all the remainder of this region. As stated in the general account of Africa, the whole of this region lying north of the Gulf of Guinea (including Senegambia) consists of a strip of flat country backed by mountains. The breadth of this flat strip varies from about thirty to seventy miles, and the first break in the level consists of ranges of hills from the tops of which can be descried the rugged and densely wooded table mountains of the interior. The shore itself is almost uniformly low and flat, the principal exception to this character being formed by the rocky peninsula of Sierra Leone, which owes its name (meaning "lion's ridge") to the constant roaring of the surf which beats against its sides. Where the coast turns southwards the mountains (the lofty Cameroon Mountains and those to the west of the Fan country) advance nearer to the shore, though here also at

the mouths of the rivers there are considerable plains. This region of Western Africa is one of the hottest parts of the globe, and one of the most unhealthy for Europeans, dangerous even for natives of the African interior. In Senegambia the temperature in the shade rises to 97° Fahr., and in some parts of Guinea even to 102°. On all this coast south-west winds prevail the whole year round, but during our winter months they are feeble and often local, and occasionally during this period different parts of the coast are visited by a violent wind called the *harmattan*, which blows from the interior, and is heavily charged with choking dust. During our summer months the south-west winds blow with much greater strength and volume, and discharge immense quantities of rain accompanied by tremendous thunderstorms.

Except in the northern district from the Senegal to Cape Roxo, which is comparatively barren and in some parts quite destitute of vegetation, the whole of the region of which we are now speaking is remarkably fertile, and on the Guinea coast produces all the members of the vegetable kingdom mentioned in the general account of Africa as found growing within the tropics. On the coasts there are mangroves as far as the influence of the salt water reaches, and among other trees the most splendid and conspicuous are the baobab, which sometimes has a stem more than thirty feet in diameter, and the cotton tree (*Bombax pentandrium* or *Eriodendron anfractuosum*), which grows to a gigantic height and bears magnificent branches. The region also produces valuable timber and dye-woods (African mahogany, African teak, obtained from *Oldfieldia africana*, camwood from *Baphia nitida*, &c.), various valuable kinds of palm, and above all that which produces palm-oil (*Elæis guineensis*), the guru-nut tree (*Sterculia acuminata*), the shea-butter tree in all the mountains, sugar-cane, tobacco, pistachios, mangoes, arachis (ground-nut), and various sorts of yams, these last forming the principal food of the people. In the fertile part of Senegambia the vegetation, though luxuriant, is not so varied. Both there and in Guinea the grasses grow with extraordinary vigour, in some places, as in Ashantee, attaining a height of 20 feet. Amidst such a luxuriance of natural products agriculture is looked upon as almost superfluous and is in a very low condition. Where it is carried on rice, and next after rice the ground-nut, are the principal objects of culture. Excellent coffee is grown in Liberia. In the interior of Senegambia cattle are kept in large numbers by the Foulbehs, and camels are reared on the savannahs of the same region, but in Guinea itself the presence of the tsetse fly prevents the introduction of domestic animals. Among wild animals snakes (of which the python is one) are remarkably numerous. Almost the only minerals of importance are iron and gold. The former abounds in the mountains about the upper course of the Senegal, in those of Ashantee and Dahomey, and in those which overlook the Gaboon river on the east. In the last locality it is found almost in a native state. Gold is found on the coast which takes its name from that circumstance, chiefly in diluvial soil, but partly also embedded in rocks in the interior. In industrial arts the people of Ashantee seem the furthest advanced, their manufactured articles (carpets, gold ornaments, &c.) being remarkable for their delicacy, brilliancy, and variety. The chief seat of

trade on the whole coast is the British settlement of Lagos on the Slave Coast. At one time the trade in slaves was more valuable than any other kind of commerce, but this trade, though still carried on as vigorously as ever in the interior, is now kept down on the coast by the vigilance of British cruisers. At the present day the leading export from this coast is palm-oil, enormous quantities of which are brought down from the interior to the mouths of the Niger, Calabar, and Cameroon rivers. There is a large trade in gold-dust at Cape Coast Castle, but this is steadily diminishing, and among the principal other exports from this coast are ivory, hides, wax, and gum, besides the timber and dyewoods referred to above among the products of the region. The chief articles imported are coarse linens, woollens, and cottons, West Indian rum, but still more German potato-spirit made to pass for rum, fire-arms, gunpowder, leather, soap, tallow, glass, and refined sugar. The trade, formerly almost monopolized by the British on the Guinea Coast, is now shared to a considerable extent by American merchants, especially in Liberia and on the Gaboon river.

The inhabitants of this region are mainly true Negroes. In the lowlands of Senegambia the principal tribes are the Serere and Jolofs, in the highlands of the interior the Mandingoes (or Malinke) and Soninke, the former extending from the sources of the Niger a considerable distance eastwards along the mountains of Guinea. These last two tribes are of all the Negro race the most conspicuous for their trading qualities, and have hence been spoken of as the Negro Jews. But along with these there lives in some parts of the highlands of Senegambia a section of the Foulbeh tribe, belonging to the Central African race, a pastoral tribe which has peopled a large part of Soudan and immigrated into Senegambia from the east. Liberia and the adjoining coasts are inhabited by the Kroo Negroes, and further east, from the Assinee river to the Niger, the ground is occupied by tribes bearing various names, but speaking languages almost identical or at least closely allied. On the Gaboon river the principal tribe is the Mpongwe or Pongo, in the surrounding woods the Shekani, and further in the interior the Fan, a tribe of cannibals.

The religion of most of these tribes is that of fetishism, that is, the religion in which the only objects of worship are stocks and stones, or, it may be, a cock, a panther, a serpent, or some other animal, each tribe generally having some fetish of its own as a common object of worship, while at the same time every individual member of the tribe may have in addition a fetish peculiar to himself, to which he prays when he desires anything, and which he punishes if the object of his desire is refused. On the coast of Dahomey serpent worship is observed with great state. In Whydah there is a serpent temple in which more than a hundred of these reptiles are kept as sacred. In connection with fetish worship some of the most barbarous rites, such as human sacrifice, are practised, but more on the Guinea Coast than in Senegambia. In Dahomey and Ashantee it is, or was till recently, the custom, on the death of the king, to slaughter indiscriminately thousands of his subjects, that their souls might serve as an escort to that of the king to the other world, a custom that existed at one time, as we are informed by Marco Polo, also among the Mongols in Central Asia. After the

Ashantee war in 1874 the king was obliged in the treaty concluded with this country to engage to put an end to human sacrifices in his dominions. Besides fetish worshippers there are a good many Mohammedans in the region now under review, and their number is increasing through the conquests of the Foulbehs and the trading connections of the Mandingoes, both of which are Mohammedan tribes.

The government in the different tribes is for the most part despotic. The two most powerful native states are those already mentioned, Dahomey and Ashantee, in both of which there is a civilization of a kind tolerably completely organized, and attended in the highest grades with a great deal of barbaric splendour. There is one native republic, that of Liberia on the Pepper Coast, founded in 1822 by some American philanthropists as a settlement for free Negroes, and declared an independent republic in 1847. A few years later the adjoining colony of Maryland, founded under similar circumstances, was amalgamated with it, and in 1880 the contiguous land in the interior was likewise annexed. The whole has now an area of about 18,500 square miles, with a population estimated at 1,400,000. Only a very small proportion can be called civilized, and altogether the condition of the republic is miserable and no way fitted to give one a high idea of the capacity of the Negroes for self-government. There are numerous European settlements on the Senegambian and Upper Guinea Coast, but the number of European residents is, in consequence of the unhealthiness of the climate, very small, including only a few traders, officials, and missionaries. A large part of Senegambia is under the influence of the French, who are at present (1881) contemplating the establishment of railway connection between the Senegal and the Niger, and have recently concluded with the king of Segu a treaty which places the Niger from its sources to Timbuctoo under French protection, and grants to the French the sole right of settling and carrying on trade in Segu. Other French settlements exist at the mouth of the Gaboon. The British settlements are those at the mouth of the Gambia, those on the Sierra Leone coast including the peninsula of Sierra Leone itself, the whole of the Gold Coast (the interior of which as far as the frontier of Ashantee is under British protection), and the coast on each side of Lagos, with Lagos itself. The Gambia and Sierra Leone settlements form together the West African settlements, which are under a governor resident at Free Town (17,000), and the remainder form the Gold Coast colony under a governor at Cape Coast Castle (10,000), with an administrator at Lagos. Both the Danes and the Dutch formerly possessed stations on the Gold Coast, but the former were purchased by the British in 1850, and the latter acquired in 1872. The Portuguese have a few settlements in Senegambia about lat. 12° N. Of the four islands in the Bight of Biafra two, those of **Principe** and **Sao Thome** (St. Thomas), belong to the Portuguese, the other two, **Fernando Po**, the largest (about half as large again as Skye), and **Annobon**, the smallest, to Spain. Clarence Peak, an extinct volcano with a very regular conical shape, rises on Fernando Po to upwards of 11,000 feet in height, and being clothed to the very summit with magnificent forest trees, among which the silk-cotton tree is conspicuous, makes

Clarence Bay the most beautiful spot on the west coast of Africa. All the islands are very productive, but all except Annobon very unhealthy.

SOUDAN is the name given to the region lying to the south of the Sahara and extending across Africa from Senegambia to Abyssinia, the eastern portion being now part of the dominions of the Khedive, and already noticed under that head. The portion still to be described is for the most part a flat or slightly undulating region. So far as is known there are no considerable elevations in the northern part of this tract between the mountains in the west which separate it from Senegambia and Upper Guinea and the mountains in the north of Waday, about 17° N. In travelling from Kuka on Lake Chad to Timbuctoo the first interruption to the general monotony of the landscape observed by Dr. Barth was the remarkable range of the Hombori Mountains in about 15° N. and 1° W., and the summits of these peaks are only about 800 feet above the level of the plain and probably not more than 2300 feet above sea-level. Further south, however, the surface is more diversified. During the summer months the Soudan is well watered by rains brought by winds from the south-west and south-east, and during that period the ground is in some places covered with a rich vegetation, and in others (where the plains are most extensive, as in the greater part of Bornu) numerous oases are separated from one another by less favoured tracts. Several of the states of Soudan are bordered on one or more sides by strips of desert, such as that which has been already mentioned as intervening between Kordofan and Darfur. During our winter months the whole region has a dry and withered appearance, for then no rain falls, since the domain of the (north-east) trade-wind which constantly blows over the Sahara extends further and further south as the sun retires. The further you go to the south in the Soudan accordingly the longer does the rainy season last.

The Hombori Mountains.

Across the whole of the northern part of this region (and indeed almost from the west to the east coast of Africa) there stretches a belt of mimosas (chiefly acacias), beginning about 15° 30′ N. and extending southwards for four or five days' journey. Of the other trees of the region the most characteristic are the tamarind-tree, the shea-butter tree, and palms, and of these last the most impor-

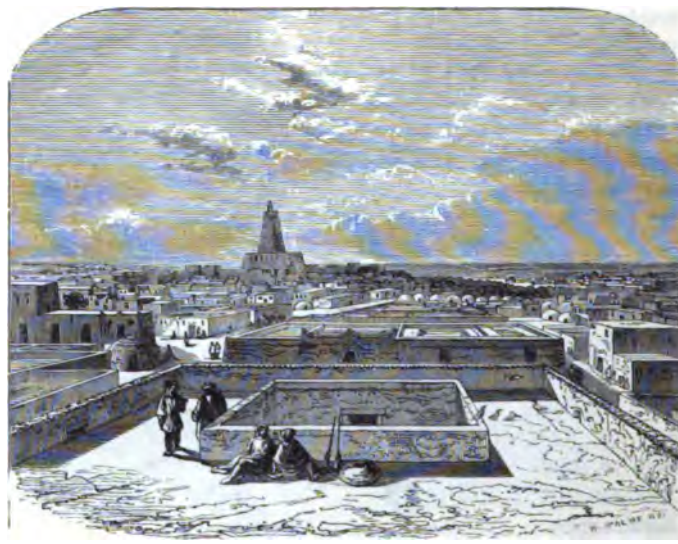
tant perhaps is the deleb-palm (*Borassus æthiopum*), a palm with a stem swollen in the middle and yielding a nut the size of a man's head, which is nearly of as much consequence as an article of food in those parts of inner Africa as the fruit of the date-palm is in the more northerly regions. The date-palm too is to be seen in Kanem and Waday, but probably not below 13° N. lat. The chief objects of cultivation are negro-millet or *duchn* (*Pennisetum typhoideum*), durrah, ground-nuts (*Arachis hypogæa*), maize, indigo, and cotton. Domestic animals are reared in great numbers throughout Soudan. During the dry season the plains are traversed by immense herds of gazelles and flocks of ostriches. Coarse cottons, and tanned ox-hides and goat-skins, are the principal manufactures of the natives. British cottons, and also burnouses, sugar, and salt are imported; various products of the land are exported, but the chief export of some states, as of Bornu, is slaves. The general medium of exchange is a kind of shells called *cowries*, but in Bornu shirts are given in payment of large sums. In the west the trade is chiefly in the hands of the Tuaregs, the inhabitants of Western Sahara.

Soldiers of Bornu.

In the west of the Soudan the principal tribes are the Mandingoes, Bambarras, and the Foulbehs or Fellatahs, the two former inhabiting the upper parts of the Niger basin and the last the region inclosed by the great northern bend of that river, a region which, however, is very little known. The Foulbehs also hold in subjection the Songhay or Sonrhay to the east of their own territory, and likewise form the dominant race in the states lying to the south-east (Gwandu, Sokoto, and Adamawa), where the majority of the inhabitants consist of Haussas in the west and Battas in Adamawa. Both of these tribes are very intelligent and industrious, but neither of them seems to be endowed with much political ability. The Battas are finely formed and have a skin of a yellowish red colour, the Haussas are much darker, almost black. In disposition the Haussas are sociable, and lively, and their language, the richest and most harmonious of all those of Middle Soudan, is spoken as far north as Agades and almost as far as Benin in the south. The inhabitants of Bornu are mainly Kanouris, but in addition to these there are numerous members of a nomadic Arab tribe called the Shua. The Kanouris are remarkably tall and strongly built, but in features are extremely ugly. In character they are described as good-humoured, timid, and indolent, but for all that the state of Bornu is the

most highly organized of all those of the Soudan. Their language appears to have some affinities to that of the Tibboos in the Eastern Sahara. The people of Waday are said by Dr. Nachtigal to be remarkably barbarous, and their land extremely poor. No less barbarous are the inhabitants of the regions lying further to the south, most of whom are cannibals.

The largest town in Soudan is Kuka, the capital of Bornu, estimated to have a population of 60,000. It lies in a desolate region not far from the west coast of Lake Chad, and consists of two adjacent towns, each surrounded by its own wall. Sokoto (20,000), the capital of the state of the same name, is another uninviting place, and is inferior in population to Kano, which lies further north in the same state, and is estimated to have a population of 50,000. In the land of the Mandingoes and Bambarras there are two important towns, Segu and Sansandig, both on the Niger, and the latter said to be singular among the towns of the Soudan in this respect, that everybody there works, and the place is a seat of great wealth. Another seat of wealth is Timbuctoo, the centre of the trade between Western Soudan and Northern Africa. It lies a little to the north of the Niger, at the western part of its great bend, and presents, with its regular streets and handsome dwellings of the rich merchants of Ghadames, a rather imposing appearance. The fixed population of the town is only about 13,000, but during the fair or trading season, which lasts from November to January, when numerous caravans come from Marocco and Ghadames to meet the merchants who descend from the Upper Niger, this number is increased by from five to ten thousand. The principal articles of trade are gold, salt, and guru nuts, the only ones of European origin, cottons, red cloth, and tea.



Timbuctoo.

LOWER GUINEA is the name given to that part of the west coast of Africa which extends from the Ogowe southwards to Cape Frio in about lat. 18° 30′ S. From a short distance south of the river just mentioned to Cape Negro in about lat. 15° 20′ S. the coast-line is formed by a range of rocky cliffs interrupted only

by the marshy depressions at the mouth of the Congo and Coanza. Below Cape Negro the shore is uniformly flat. In the interior the surface gradually rises to the range of mountains about 10,000 feet high which here forms the western boundary of the plateau of South Africa. The climate, as might be expected, is different in different parts. In the south an almost European climate prevails, and in general the interior (at the distance of fifty miles and more from the coast) is considerably cooler and healthier than the coast, and contains abundance of good drinking water, which on the coast is wanting. The vegetable products of the region are extremely abundant and varied. The hills and mountains in the south (Angola) are covered with trees, including all South African species, and even the northern region is well wooded here and there. The principal objects of cultivation are manioc (furnishing the chief food of the people), rice and maize, and in Angola, for export, coffee and cotton, and also sugar-cane, which is chiefly used for making spirits. Among the other important vegetable products exported from the coast are palm-oil, archil, and gum, the gum-tree (*Acacia senegalensis*) here forming whole woods. At one time the slave-trade was almost the only business carried on along the coast, and when it was put a stop to the trade almost became extinct, but gradually revived when both natives and white settlers, finding this source of gain cut off, applied themselves to the development of the resources of the land. Besides the vegetable products above mentioned Angola exports also ivory and wax, and the Loango coast, in addition to these, copper. In the interior of Angola slavery is still practised, but the Portuguese (who are here dominant) are said to have resolved on its abolition within the next few years.

The inhabitants all belong to the Bantu race, but are divided into numerous tribes. They are all heathens (fetish worshippers), and in some of the states the king himself is worshipped as a deity. On the Loango coast the rulers are all mere instruments of the fetish priests, and are so burdened by the necessity of attending to countless *quixilles*, that is, prohibitions relating to all the ordinary acts of life, walking and standing, eating and drinking, sleeping and waking, that it is sometimes difficult to find one who is willing to undertake the duties of royalty, and the throne may accordingly remain vacant for several years in succession. Similar though less numerous quixilles regulate the doings of common people, and these are so rigorously observed, that cases have been known in which a native who had unwittingly violated one of them died out of sheer fright. The authority of the Portuguese extends over the coasts of Angola, Benguela, and Mossamedes, that is, from about 8° to 18½° S., and also over an undetermined portion of the interior. The principal town in the Portuguese district is S. Paulo de Loanda, or simply Loanda, a place of about 12,000 inhabitants, a little to the north of the mouth of the Coanza. At Boma or Embomma, near the mouth of the Congo, there are several stations of European merchants. The river Ogowe forming the northern boundary of Lower Guinea has been explored by several French expeditions, with the view of ascertaining whether that river was fitted to serve as a highway for trade with the interior; but the expedition of 1875–78 under Count Savorgnan de Brazza has settled the fact

that it cannot do so directly. This expedition traced the river up to the point (about 1° S. and 13° E.) where it is formed by the union of two insignificant streams of no service for navigation, but, on the other hand, separated by only about 230 miles of easily traversed country from the Alima, a navigable affluent of the Congo, which it joins above the falls. In a later expedition the count, after founding a French station on the Upper Ogowe, descended thence to the Congo, where he founded a second station in Oct. 1880.

DAMARA LAND, the district lying to the south of Lower Guinea and extending to about the tropic of Capricorn, consists of a sandy desert coast strip, and an upland in some parts mountainous interior, inhabited by nomads in the plains and robber tribes in the mountains. The former speak the Ovaherero language, the latter that of the inhabitants of Great Namaqua Land, and they live at constant warfare with one another as well as with the last-mentioned people. The products of the land include copper (which is worked), tin, lead, gold, and ivory, and the vegetable kingdom presents in the coast desert one of the most remarkable plants known, the *Welwitschia mirabilis*, called by the natives *tumbo*. In 1878 the British formed a settlement on Walvisch Bay on the coast of Damara Land, a bay which owes its name to the large number of whales that visit it.

GREAT NAMAQUA LAND is the name of the extensive region between Damara Land and the Orange River, which separates it from Cape Colony. Its coast-line is as barren as that of Damara Land, but parts of the interior are favourable for the rearing of cattle, which is the chief occupation of the inhabitants. Copper ore appears to exist in abundance in several localities, and in the vicinity of the Kalahari Desert ivory and ostrich feathers are collected. The Namaquas are the principal existing tribe of the Hottentot race, and do not number many thousands. British settlements have been formed on Ichaboe Island and Angra-Pequena Bay.

Far out in the Atlantic there are two small islands and an island group to the south of the equator which have been taken possession of by Great Britain. **Ascension**, in about lat. 7° 55′ S., lon. 14° 21′ W., is an extinct volcanic cone with an area of about 34 square miles, and is important as a sanatorium for the British West African squadron and a store depot. It is also celebrated for its gigantic turtles, which sometimes weigh 700 lbs. and upwards. The island was taken possession of by the British in 1816. **St. Helena**, in lat. 15° 57′ S., lon. 5° 42′ W., is a basaltic rock with an area of about 46 square miles, and, having at James Town a fine natural harbour, is an important place of call for ships passing between Europe and the East by the Cape route. The island came into the possession of the English in 1651, and in more recent times became famous as the place of confinement of Napoleon Bonaparte after the battle of Waterloo, and the place where he died on the 5th of May, 1821. The small volcanic group of **Tristan da Cunha** (improperly Tristan d'Acunha), in about lat. 37° 6′ S., lon. 12° 2′ W., has a peak on its largest island rising to the height of 7640 feet, and the same island now contains a flourishing colony under the protection of the Cape government. The group, discovered in 1506, is named after its discoverer, a Portuguese. It was taken possession of by the British in 1817.

CAPE COLONY AND DEPENDENCIES.

Cape Colony is a British colony at the south of Africa, consisting in the strict sense of the area bounded mainly by the Orange and Great Kei rivers on the north, and on all other sides by the sea, and thus extending about 440 miles from north to south, and about 600 miles from east to west, and having an area of about 199,950 English square miles, or more than twice that of Great Britain. But in a wider sense it includes also the Transkeian Districts, Griqua Land West, Basuto Land, and Kaffraria, all of which are under the governor of the Cape Colony, bringing up the total area of the colony and its dependencies to about 241,000 square miles.

PHYSICAL FEATURES.—Reference has been made in the general account of Africa to the terraced formation of the surface in the extreme south of the continent. The principal mountain chain of the Cape Colony (and the adjoining territory) forms the boundary of the innermost of these terraces, separating the exterior tracts from the great central plateau region of South Africa, and at the same time constituting the main water-parting of the colony. Commencing in Namaqua Land it forms a curve corresponding closely with that of the coast, which is at an average distance from it of about a hundred miles, and sweeps round to the east under the names of Roggeveld, Nieuweveld, Sneeuwbergen, Stormbergen. The average height of the range is from 6000 to 7000 feet, and the highest point attained within Cape Colony proper is the Compass Berg in the Sneeuwbergen, 8300 feet. The summits of the range are mostly table-topped, and the exterior face, like those of the other terraces, is very precipitous. Below this innermost range there lies a plain or table-land, called the Great Karroo, about 300 miles in length and 60 in breadth, bounded by the second series of mountains, and having a gentle slope towards the interior. The name *Karroo* is a Hottentot word for hard, and the name is due to the hardness of the soil of this plain during the dry season, when the surface is often baked by the heat of the sun. After rain, however, the Karroo affords excellent pasture, being covered with grass and flowers. Its outer boundary, like its inner one, has the same general curve as the coast-line, and in height it attains in some points 7000 feet. Its principal ranges are the Zwarte Berg, the Witte Berg, and the Cedar Berg. Beyond it there exists a third series of mountains bounding a lower series of terraces, and having an average height of about 4000 feet. The principal ranges in this outermost of the three concentric series of mountains are the Zondereinde, Drakenstein, and Olifant Bergen. The colony is almost wholly wanting in navigable streams. The only permanent river in Cape Colony proper is the Orange River, which receives no permanent tributary below the Vaal, and accordingly becomes shallower in the lower part of its course. It is navigable only for boats, and even for these only a few miles above its mouth. By this river and its tributaries the basin in the interior of the great water-parting is entirely drained; and all the other streams of the colony merely carry off periodically the rains of the

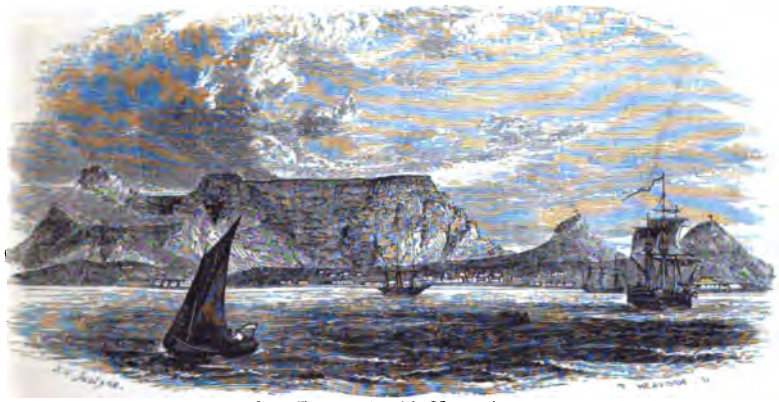
terraces through narrow *kloofs* (clefts or ravines), which at the same time afford the only means of ascending from one terrace to another. There are no lakes, but during the rainy season shallow pools of water called *vleis* collect in the low-lying spots, and in the dry season these spots furnish, unless the soil be extremely saline, excellent grazing for cattle.

GEOLOGY AND MINERALS.—There is a remarkable uniformity in the geological structure of the mountains of the Cape Colony. In almost all of them the nucleus seems to consist of granite. Often the granite is overlaid by clay-slate and other formations, and often also the summit consists of a quartzose mass, and it is where this occurs that the mountain assumes that table-topped form which has been mentioned as characteristic of the mountains of the innermost range. The Zwarte and Lange Bergen consist of sandstone. On the Great Karroo plateau, which appears to have been at one time the bed of a lake, there are vast deposits of shale, containing among other fossil remains those of remarkable tusked saurian reptiles unknown elsewhere. Throughout the colony there are signs of an upheaval of the land still in progress, and in the eastern province there are beds of waterworn pebbles hundreds of feet above sea-level. The most important mineral is copper, which is found in great abundance in Little Namaqua Land in the district of Springbokfontein. Manganese is obtained in the Paarl division. Extensive beds of workable coal exist in the division of Graaf Reynet and in the Stormberg range, and railways are projected to both of these districts. Near Graham's Town are large quantities of iron ore. Large salt-pans exist in several places, and salt now forms a considerable export of the colony.

CLIMATE.—The climate is very healthy and generally pleasant, though in summer the heat is in some parts very great. The mean temperature of the year at Cape Town is about 62° Fahr., the range being from 54½° to 68½°, and at Graham's Town in the eastern province the range is from 35° to 100°, and the mean temperature 63°. The chief defect of the climate is a deficiency of rainfall. This is felt especially in the interior, where the first necessity on forming a new settlement is the construction of a "dam" or reservoir to store the water. The south-western parts of the colony outside the Great Karroo are supplied with rain at a different period of the year and by different winds from the remaining districts. These parts receive their rains in the winter months (especially June and July) from north-west winds, while in the rest of the colony the rains fall in summer and are borne by more or less easterly winds; and as these are rapidly drained by the mountains near the coast the quantity of rain diminishes gradually from east to west, till we come to the district of the winter rains. At Graham's Town the average annual rainfall is 33 inches; at Worcester, on the western border of the Great Karroo, only 12; at Cape Town, 23. In some years heavy losses and great distress are caused by exceptional periods of drought.

VEGETATION AND AGRICULTURE.—Except along the south-east coast district, where there are extensive forests, timber is scarce. There are upwards of a hundred different kinds of woods, however, many of them extensively employed for such purposes as house-building, wagon-making, furniture and cabinet work.

With irrigation trees can be grown anywhere. The aloe and the myrtle grow to a great size; the castor-oil plant and other medicinal herbs are abundant; and beautiful bulbous flowering plants and heaths are found in extraordinary variety, and form the most characteristic features of the Cape vegetation. The principal agricultural products are wheat, oats, and maize and millet (the returns for the last two crops are always given together). Barley is also very generally grown, but not in such quantity as the cereals just mentioned, and rice is cultivated on inundated tracts on the banks of the Olifants River in the west. Tobacco is grown in many places, but the best is that of the valley of the eastern Olifants River, a tributary of the Gauritz. All kinds of European vegetables and pot-herbs, and all the fruits of warm temperate climates, such as apples, pears,



Cape Town and Table Mountain.

plums, peaches, melons, apricots, walnuts, almonds, oranges, limes, &c., thrive excellently, and fruits dried and preserved are exported. The vine, introduced by French emigrants, mostly Huguenots driven from their own country by the revocation of the edict of Nantes in 1685, is also cultivated, and some excellent wines (notably those of Constantia) are made. But by far the most important industry of the colony is sheep-rearing, and the export of wool forms on an average nearly two-thirds in value of the total exports. The native sheep, which carries a tail about eighteen inches in length and weighing from seven to ten pounds, has been crossed with the best European breeds, and now produces wool of excellent quality. Most attention is now devoted to the breeding of pure merinoes, the consequence being a great improvement in the wool. Goats are also bred, both the native and the Angora, and the export of mohair, which is first met with in the returns of 1868, increased fourteenfold within the next ten years. Even more rapid has been the development of ostrich-breeding within recent years, and the export of ostrich feathers now ranks next in value after wool. Cattle-rearing is also greatly on the increase. Between the censuses of 1865 and 1875 the area of occupied land increased by about 95 per cent, and the land actually in cultiva-

tion (which at the latter date constituted only about ·7 per cent of the whole occupied land) increased by about 26 per cent. The total extent of crown-lands remaining unalienated was in 1878 somewhat less than 50,000,000 acres.

ZOOLOGY.—The quadrupeds of the colony comprise the African elephant, still found in the forests of the south-east coast region; the hippopotamus in the lower Orange River, the buffalo, wild-boar, zebra, quagga, leopard, hyæna, numerous antelopes, baboon, armadillo, &c. Lions, at one time numerous, are now only found in the parts most remote from civilization. The birds include vultures, eagles, serpent-eaters, pelicans, flamingoes; and among smaller birds may be mentioned the sociable grossbeaks, remarkable for the manner in which they build their nests, aggregates of which form umbrella-like structures on mimosa trees. The ostrich is now rare except as a domestic bird. Other native animals are large snakes, the venomous cobra da capello, and the scorpion. Along the coast whales and seals abound, and salt and fresh water fish are plentiful.

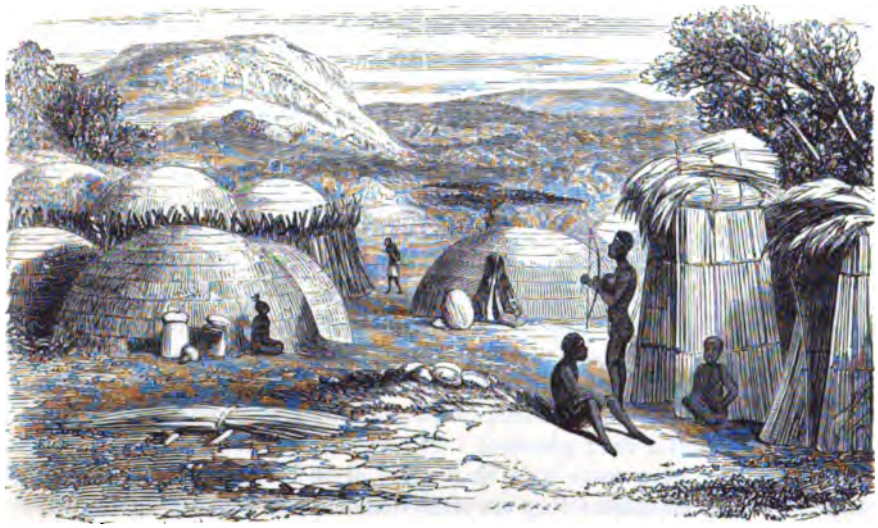
COMMERCE AND COMMUNICATIONS.—There are as yet no manufactures of any importance, and consequently the imports of the colony consist mainly of manufactured goods, chiefly from Great Britain. The principal exports, besides those already mentioned, are copper ore, hides, ivory, and sheep, besides diamonds, the value of which last export is unknown. To facilitate the inland traffic numerous roads have been made, while railways are opened or in course of construction in all directions, and the telegraph has been extensively introduced. Telegraphic communication between Cape Town and England by way of Natal, Zanzibar, and Aden was established on Christmas day 1879. Lighthouses have been built round the coast, and extensive works constructed at various of the ports, especially at the capital, Cape Town.

PEOPLE, &c.—At the census of 1875 the total population of Cape Colony proper amounted to 720,984, or about 3½ to the square mile. The most populous districts lie in the east. If Cape Town be left out of account as affecting the density of population in the division by which it is inclosed, the most densely populated division in the colony is that of King William's Town, forming the inland portion of what was formerly known as British Kaffraria, lying between the Kei and Keiskamma. That division at the last census had a population of 61 to the square mile, while the Cape division, exclusive of Cape Town, had one of only 38 to the square mile. The proportion of inhabitants of European race at the census of 1875 was about 33 per cent, and the remainder of the population was composed of Kaffirs and Bechuanas (29½ per cent), Fingoes (10 per cent), Hottentots (13½ per cent), Malays (1½ per cent), and persons of mixed descent and of diverse origin (12 per cent). Between the censuses of 1865 and 1875 the European or white population of the territory now included in the Cape Colony increased 24·8 per cent, and the coloured 23·3 per cent. Amongst the European population at the last census the proportion of females to males was 91, among the coloured population 97 for every hundred.

The chief elements of the European population are Dutch settlers and their

descendants, the representatives of the founders of the colony, who are most numerous in the west, and British settlers and their descendants, most numerous in the east. Less important elements are those of German, French, and Portuguese origin. The English language is that of the legislation and that used in the seaports as well as in the English settlements, but a variety of Dutch, considerably different from that now spoken in the Netherlands, is still largely used in the interior of the western and midland provinces, though gradually giving place to English. Five out of six of the newspapers published in the colony are English.

The native inhabitants of the Cape Colony at the time of the first European



A Kaffre Kraal.

settlements in the seventeenth century were Hottentots and their kinsmen the Bushmen. The Hottentots, including the Bushmen, form, as elsewhere mentioned, a race by themselves, having in common marked physical features, and speaking dialects quite distinct from all other languages spoken elsewhere. The name Hottentot was originally applied to the race by the Dutch, they calling themselves Koi-Koin or Quae-Quae, that is, the people. They support themselves chiefly as nomadic cattle rearers, and their *kraals* or villages are composed of huts made of branches and twigs covered with mats or sheepskins. Cloaks made of sheepskin called *karosses*, form their chief winter clothing, as it does that of all the South African tribes. Their language is remarkable for the prevalence in it of sounds known as *clicks* or *clucks*, which are produced by pressing the tongue against the teeth or some part of the palate and then smartly withdrawing it. Their native songs and fables show that the intellectual capacity of the race is by no means a low one, and they are said to be naturally of a cheerful and lively disposition. They show great quickness

in acquiring foreign languages, but at the same time great readiness in adopting the vices of the civilized nations with whom they come in contact. Drunkenness is charged against them as a general failing, and the race is rapidly degenerating and dying out. In Cape Colony they are found chiefly in Little Namaqua Land on the south of the lower course of the Orange River, but large numbers of them are dispersed through the colony as labourers. Though the number of Hottentots in the Cape Colony at last census is given at nearly a hundred thousand, this number includes a large proportion of bastard Hottentots, and the whole number of pure Hottentots, including the Namaquas and Koranas, to the north of the Orange River, is not believed to exceed the figure just mentioned. The Bushmen or Bosjesmans, or as they call themselves the Saan, are the most degraded section of the race to which they belong, and indeed one of the most uncivilized tribes on the face of the globe. They are found not only in the Cape Colony, where they are thinly scattered over the territory within the innermost range of mountains, but also throughout the middle region of the Kalahari Desert, and even as far north as the districts about the Ovambo River in lat. 18° S. They live entirely by hunting, and show so strong a disinclination to give up their vagabond mode of life that they have been called the gipsies of South Africa. With equal propriety they may be called the Ishmaelites of that region, since their hand is against every man and every man's hand against them. All the adjoining native tribes look upon them as their natural enemies, and in earlier times they were captured for slaves by the Boers or Dutch settlers. The Bushmen with whom the settlers in the South African colonies come most in contact are remarkable for the smallness of their stature, averaging only about 4 feet 6 inches in height, but those dwelling further north are said to possess a finer physique. The dwellings of the Bushmen, as might be expected, are even more rude than those of their kinsmen the Hottentots proper. In the mountains they are often content with hanging up a few mats in front of the rocks on the windward side. At one time the Bushmen were spread over a much wider area than that which they now occupy, and they have left two noteworthy signs of their former presence in nearly all parts of the Cape Colony. One of these consists in outline sketches of men and animals, figures of rings, crosses, &c., executed with pigments on the rocks in the same manner as they are still in the habit of decorating the rocks of the districts which they now inhabit; and the other consists in perforated flints such as are still made by them to form the head of a kind of hatchet which they use in digging up roots.

The Kaffres or Kaffirs belong to the great South African race designated by many ethnologists by the name of Bantus. The name Kaffre, now generally applied to the tribes of this race living between the sea and the Drakenberg Mountains, is not a native one, any more than the names Hottentot and Bushman, and its resemblance to that of the people of Kafiristan on the north-west of India is not accidental. The names are in fact identical, although the peoples to whom they are applied are so widely separated from one another in space and so different in their affinities. Kaffre, Kaffir, or Kafir is simply a

European form of the Arabic word for "infidel," and was first adopted from the Arabs by the Portuguese as a designation for those tribes to which it is now applied. In many respects the Kaffres present a strong contrast to the Hottentots. Their skin is much darker, their bodily frame stronger. But perhaps the most striking point of difference between the two races, is the superior power of resistance which the Kaffres exhibit to the encroachment of European civilization. While, as already stated, the Hottentots are deteriorating and dying out, the Kaffres, under favour of the security afforded by European government, are rapidly multiplying. This is no doubt due to the greater fitness of the Kaffre for living a settled life, for which the region inhabited by the Hottentots is not so favourable as that in which the Kaffres dwell. Even the independent Kaffre tribes are to some extent tillers of the soil, and under European government the practice of agriculture is spreading among them. The Kaffre kraals resemble those of the Hottentots, though in some cases the huts are somewhat more substantial in their construction. The Kaffres living within the limits of Cape Colony (for the most part in the region formerly known as British Kaffraria between the Keiskamma and the Kei) mostly belong to the tribe of the Amaxosa. The Fingoes, though entered separately in the census returns, are also a Kaffre tribe, but they immigrated into British Kaffraria from Natal and its vicinity. A large proportion of them afterwards moved across the Kei River to the district now known as Fingoland. The Bechuanas are a tribe allied to the Kaffres. Many of the tribes are warlike. The chief weapons used by them are the *assagai* (a kind of lance or javelin), the shield, and the club. The Malays of Cape Colony were originally introduced by the Dutch settlers as slaves.

Education is steadily advancing under the provisions of an act passed in 1865. By this act three orders of schools designed to meet the needs of all sections of the population were established. These were: (1) undenominational public schools; (2) schools established by missionaries, and assisted by government under certain conditions, providing for secular education; and (3) day schools and industrial institutions for the civilization of the aborigines on the frontiers of the colonies. For the higher education there are several colleges and denominational institutions, and a university at Cape Town incorporated in 1873.

At the census of 1875 the population of the colony as regards religious belief was made up as follows:—

	Protestants.	R. Catholics.	Mohammedans.	Jews.
European or White, ...	225,126	8666	18	538
Coloured, ...	139,963	1001	11,196	—

The leading Protestant denomination is the Dutch Reformed Church, to which belonged at last census nearly 48 per cent of the adherents of all religious denominations. It is Presbyterian in its form of government, and its clergy are largely recruited both from Holland and Scotland. The Church of England has a bishop at Cape Town and another at Graham's Town. The coloured adherents of Christian churches are mainly Hottentots, most of that race being nominally Christians. The less pliable Kaffres have not been found so easy to gain over to the Christian faith, but even among them the labours of the missionaries are

not without effect, and the Kaffre Christian is said to be of a more highly civilized type than the Hottentot. Hundreds of native young men are engaged in teaching in Kaffre mission schools; but among the Kaffres, as among the Hottentots, the excessive use of alcoholic liquors, in which since 1865 there has been free trade, is a great hinderance to further progress. The Mohammedans consist almost exclusively of the Malay section of the population.

GOVERNMENT, &c.—The constitution formed under the acts passed in the years 1853, 1865, and 1872 vests the executive in the governor (who is also commander-in-chief of the forces) and an executive council or ministry composed of certain office-holders appointed by the crown. The legislative power is in the hands of a legislative council of twenty-one members, and a house of assembly of sixty-eight members, both elective. For the election of the members of council the colony is divided into seven provinces, each province returning three members. The members of the house of assembly are elected by the towns and electoral districts. To be qualified for election to the council one must possess property in land to the value of £2000, clear of charges, or landed and personal property to the value of £4000. There is no property qualification for members of the house of assembly. The qualification for electors is the same for members of both houses, consisting in the occupation of fixed property of not less than £25 yearly value, or the receipt of wages of at least £50 a year. In electing members of both houses the principle of cumulative voting is adopted. The revenue is derived mainly from duties on goods imported.

CHIEF TOWNS.—Cape Town (population in 1875, 33,000), the capital of the colony, is built on a gradual slope bounded on its northern extremity by the waters of Table Bay, and almost completely inclosed on the east, south, and west by a series of mountains. It was founded in 1652 by Van Riebeek, the founder of the colony. Besides the government house and the courts and government offices, it possesses a university, a botanic garden with a fine collection of plants, and an observatory. The port has been provided with a breakwater 2000 feet long, inside of which ships can safely ride at anchor. A large graving-dock has also been constructed. The only other town in the colony with upwards of 10,000 inhabitants is Port Elizabeth (13,000) on Algoa Bay. Graham's Town, about 85 miles north-east of Port Elizabeth, has a population of about 7000, and Paarl, near Cape Town, consisting of a single street about eight miles in length, has a population of 6000.

HISTORICAL SKETCH.—The Dutch, who had early fixed upon the Cape as a watering-place for their ships, first colonized it under Van Riebeek, in 1652. Reducing the Hottentot inhabitants to slavery, or driving them beyond the mountains, they extended the Cape settlement over a pretty large area. It was captured by the British in 1795, restored at the Peace of Amiens (1802), and again taken in 1806, since which time it has remained in the possession of Britain. At that time the whole population, exclusive of the Kaffres, consisted of 21,000 whites, 26,000 slaves, and 14,500 Hottentots, a little over 61,000 in all. The revenue was under £100,000. The progress of the colony was greatly retarded by the Kaffre wars of 1834, 1846, and 1851–53, the result of the

depredations of this savage and warlike race. British Kaffraria was incorporated with the colony in 1865. Proposals have been made for the uniting of all the colonies of South Africa in a great confederation like that of the Dominion of Canada, but hitherto these proposals have not commanded the general approval of the states interested.

THE TRANSKEIAN DISTRICTS stretch from the Kei River to Natal, and are bounded on the west by a continuation of the innermost mountain range of Cape Colony proper, which range here attains a greater elevation than it does in the colony itself. The surface conformation of the Transkei District forms in general a continuation of that of Cape Colony proper, but the former district is better watered, its streams are permanent, its soil more fertile, and the Great Karroo does not extend so far east. The inhabitants are mainly Kaffres of various tribes, who in some cases live under their own chiefs, subject, however, to the supervision of British magistrates representing the Cape Colony in various districts. In the south dwells a portion of the Fingo tribe, removed here in 1858 after the expulsion of the Galekas by the British. They are the most advanced of all the inhabitants of the Transkeian Districts, cultivating the ground extensively and showing an aptitude for industry. About one in twenty of the population are in attendance at mission schools, and considerable sums are raised for mission purposes among the Fingoes themselves. Inland to the north of the Fingoes is the territory occupied by the emigrant Tambookis, so called because they were removed here under the direction of the British government. The Idutwya Reserve lying immediately to the east of Fingoland and extending to the Bashee River is occupied by mixed Kaffre tribes, and on the seaboard to the south of this district is the territory occupied by the Galekas or Amaxosa Kaffres, the most warlike of the Kaffre tribes within the British dominions. To the north-east of the Bashee River lies Tembuland or the land of the Tambookis proper, stretching to the Umtata River on the north-east, and inland about 30 or 40 miles from the coast. Furthest north on the coast is St. John's territory or Pondoland, which was only annexed in 1878. It is the most populous district of all, and is noted for its fertility and beauty. The whole of the remaining territory, including all the inland tract stretching northwards from the land of the emigrant Tambookis and a strip reaching to the coast between Pondoland and Tembuland, is known as Nomansland, and is inhabited in part by Griquas, Basutos, and Fingoes who were settled by the British in unoccupied tracts after 1862, and partly by Pondos, Amabacas, and other Kaffre tribes previously settled in it. The tract known as Griqua Land East lies in the extreme north of this section. The whole area of the Transkeian Districts is 15,570 square miles, the estimated population 475,000, or about 30 to the square mile.

BASUTO LAND lies to the north-west of the Transkei District, and consists mainly of a table-land inclosed on the east and north by the Kathlamba Mountains, which here attain in Cathkin Peak (10,300 feet) their highest elevation, and on the west by the Maluti Range, and containing the headwaters of the Orange River. The soil is fertile and the climate delightful. The Basutos belong

chiefly to the Bechuana stem, and are often called Eastern or Mountain Bechuanas. Under their chief Moshesh they made considerable advances in civilization, but being exposed, in consequence of the fertility of their land, to repeated attacks on the part of surrounding tribes, they were at last induced to request the protection of the British government. The request was acceded to, and Basuto Land declared British territory in March, 1868. The British authority is exercised through a governor's agent and chief magistrate, besides subordinate magistrates. The chief source of revenue is a hut tax. Since the annexation the Basutos have considerably advanced in prosperity, and among no other people in British South Africa, except perhaps the Fingoes, have missionary labours been more successful. A check was given to this increasing prosperity towards the end of 1880, when the people broke out in revolt in consequence of the measures taken to carry out an order for the general disarmament of the population. Area 8415 square miles; population 127,700, or about 15 to the square mile. The total number of whites in 1875 was only 469.

WEST GRIQUA LAND is the name of the territory on the west side of the Orange River Free State between Cape Colony proper and the Transvaal, a territory suddenly raised into importance by the discovery of diamond-fields there in 1867. The general elevation of the land is about 3000 feet above sea-level, and the prevailing character of the surface is that of undulating grassy plains suitable for sheep-grazing, alternating with sandy plains and low ranges of rocky hills. At present the diamond-bearing districts constitute almost the sole dependence of the population. The diggings are of two kinds; those on the banks of the Vaal River (the original diggings), where the diamonds are obtained by washing the alluvial soil, and those called "dry diggings," at which shafts are sunk in order to seek for the gems. The chief centre of the diamond-digging industry and the seat of government of the dependency is Kimberley, which now has about 16,000 inhabitants. The whole area of the dependency is about 17,500 square miles, the population in 1877, 45,300, or about 2½ to the square mile. The number of whites was 12,337. The coloured population consists partly of Griquas or Bastard Hottentots, a mixed race sprung from the intercourse of the Boers with their Hottentot slaves, partly of Bechuanas and members of other tribes.

THE TRANSVAAL.

The Transvaal, or the territory beyond the Vaal, is the name of the territory which is separated by the Vaal from the Orange River Free State, and is bounded on the north and north-west by the Limpopo. The water-parting between these two rivers is formed by a range running east and west called the Kashan or Makhalies Mountains. To the south of this range lie broad undulating plains, from 4000 to 7000 feet above the level of the sea, well-watered and rich in game. In the far larger region in the north the plains are intersected at

various parts by several other mountain ranges. The northern portion of the Drakenberg Mountains runs north and south in the east of the territory. The soil is generally fruitful, and the climate in the south is mild. Rain falls principally during the summer months, and in winter irrigation is necessary for cultivation, though even then the soil is frequently refreshed with showers. The southern provinces of the republic are specially adapted for sheep-grazing, the middle provinces for cattle-rearing and grain-growing, and the northern provinces are well suited for coffee and sugar plantations. Tobacco is also grown of good quality and in considerable quantity. Rice, cotton, hemp, and flax grow wild in various districts, and the coffee-plant and the vine are also found in a wild state. Fruits of one kind or another ripen the whole year through, apples, pears, figs, peaches, apricots, almonds, walnuts, &c., coming to maturity in summer, and oranges, bananas, loquats, guavas, &c., in winter. Hitherto the agricultural resources of the territory are far from being properly developed, the chief obstacle to that development being the want of labour, a want difficult to supply in consequence of the incurable laziness of the native population. The grains principally grown are wheat, oats, and maize, the last forming almost the sole food of the black population in the white settlements. Elsewhere the natives live mostly on the grain often mentioned already under the name of durrah, and here known as Kaffre-corn. Cattle-rearing forms the chief occupation of the Boers or white settlers, and cattle along with grain and tobacco are exported to the Free State, Cape Colony, and Natal. The Boers are also eager hunters, and the Transvaal is regarded in South Africa as pre-eminently the land of sport. The mineral wealth of the territory is also very varied and abundant. Various gold-fields have been discovered since 1867, and among the other minerals are copper, iron, tin, lead, coal, alum, saltpetre, porcelain earth, besides marble and various other kinds of excellent stone. The white population of the Transvaal are mainly descendants of the Dutch settlers in Cape Colony and Natal, who being dissatisfied with British rule emigrated from these colonies in order to found an independent state for themselves. The black population belong mainly to the Bechuana stem. After having existed since 1848 as an independent state, the Transvaal was taken possession of by the British in 1877 in order to put an end to the disorder that then prevailed there and to avert a threatened general rising of the natives. But although the British occupation was quietly effected at the time it caused great dissatisfaction among the Boers, who about the end of 1880 rose in rebellion against the British authority. Peace was concluded in 1881, the Boers being granted the right of self-government under the suzerainty of the British crown, which retains the control of the external relations of the state, and a veto on all future enactments affecting the natives. Pretoria, the seat of government, is situated in the Makhalies Mountains, and has less than a thousand inhabitants. The total area of the Transvaal is about 114,000 square miles, and the estimated population 315,000. The number of whites is estimated at from 25,000 to 30,000.

NATAL.

Natal is a British colony on the south-east coast of Africa between the Transkei District on the south and Zulu Land on the north, and extending westwards from the sea to the Kathlamba or Drakenberg Mountains, which separate it from the Orange River Free State, and Basuto Land. The total area of Natal is 18,750 square miles, and the population in 1878, 356,517, or about 19 to the square mile. The number of whites is only about 20,000, the remainder being mostly Zulu Kaffres. Some Indian coolies have been imported as labourers.

Kaffre Chief of the Zulu Tribe.

Natal has a coast-line of more than 150 miles in length, but so little indented that it presents only one spot (at Durban or Port Natal) where sheltered anchorage can be obtained. In respect of surface conformation, drainage, and rainfall, Natal resembles the Transkeian District, but the climate, owing to the more tropical position of the former territory, is warmer. At Pieter-Maritzburg the mean temperature of July, the coldest month, is 55° Fahr.; of February, the hottest, 80½°; of the whole year 67°. Long droughts are almost unknown. Under such a climate and with a soil in many parts of great fertility the vegetation must obviously be vigorous. The coast region, forming a strip of about fifteen miles in breadth, is admirably adapted for the growth of all kinds of subtropical products—sugar, coffee, indigo, arrow-root, ginger, tobacco, rice, pepper, cotton, besides a variety of fruits. The higher region further inland produces cereals and other European crops, while in the still higher tracts lying still further from the coast sheep-farming, and to a less extent the rearing of cattle and horses, form the principal occupations of the people. Timber-trees exist everywhere in the kloofs or mountain gorges, and on the western and northern frontiers form considerable forests. Among animals the lion and leopard are not uncommon, and hyenas, jackals, ant-bears, &c., are numerous. Coal and lime are the chief mineral productions. Sheep's wool is by far the most important of the exports, and the next in value is raw sugar, the two together making up on an average more than five-sevenths of the whole value of the exports.

The colony of Natal originated in an attempt of some Dutch Boers who left Cape Colony in 1836 to found an independent colony in this territory, where they should be free from the inconvenient restrictions imposed by the British government. These settlers proclaimed themselves an independent republic in 1839, but their right to do so was not recognized by the British, who consequently took measures to establish British authority in the newly settled region. The Boers being defeated retired to the Transvaal and the Free State, and Natal was at first annexed to the Cape Colony, but was erected into a separate colony in 1856. The head of the colonial administration is a governor appointed by the crown, and under him there are an executive and a legislative council, the former consisting of eight members (six belonging to it by right of office and two nominated by the governor from among the members of the legislative council), the latter composed of twenty-eight members (thirteen official and fifteen elected). Pieter-Maritzburg, the capital of the colony, situated about fifty miles inland from Durban, has a population of about 11,000.

ORANGE RIVER FREE STATE.

This state lies immediately to the north of the river from which it takes its name, and is completely inclosed by British territory. It consists chiefly of vast undulating plains with a general slope to the west, dotted over in many places with rocky table-topped hills, here called *kopjies;* in the northern parts hundreds of square miles are found with hardly a break in the horizon. Lying about 5000 feet above the sea-level, the country is cold in winter. In summer it experiences violent thunderstorms, and long droughts often prevail. It is, however, very healthy, and favourable to European constitutions. None of the rivers are available for internal communication, owing to the frequent occurrence of shallows, rapids, &c., and they mostly dry up in summer. The vegetation is in general scanty, but the pastures are covered with luxuriant grass, which along the banks of the streams alternates with mimosas and other shrubs. Agriculture is carried on chiefly in the mountainous districts in the east (the western slopes of the Drakenberg). The principal objects of cultivation are wheat, maize, and Kaffre-corn. Immense herds of large antelopes formerly roamed over the vast plains, but they are now fast disappearing, their place being occupied by more valuable herds of horned cattle and sheep, the latter yielding the most important article of export, wool. Among mineral products coal has been found in several places, and iron and various other ores also exist. Even gold has been found in the district of the Caledon River. Before 1836 this region was a howling wilderness, inhabited by hordes of Bushmen and broken tribes of Bechuanas and Zulus; but about that date a number of discontented Boers from Cape Colony began to settle here, and these were followed by still greater numbers from Natal after the occupation of that territory by the British.

In their new settlement the Boers declared their independence of the British government; but after some opposition, and one or two conflicts with our troops, the country was annexed to the British Empire, and continued so until 1854, when it was formally given up to the inhabitants, who were left to form any sort of government they pleased. The executive is intrusted to a president elected by the people for a term of five years, and an executive council consisting of four members besides the president, while the volksraad or people's council, consisting of about fifty members popularly elected, exercises legislative functions. Bloemfontein, the capital of the state, is situated near its centre, and has a population of 2000 to 2500. The white population is proportionally more numerous in the Free State than in any other of the South African settlements, being estimated at more than half of the whole number. They speak the same language and follow the same religion as the Boers in other parts of South Africa. The total area of the colony is about 43,000 square miles, and the population about 150,000, or nearly 3½ to the square mile.

EASTERN AND SOUTH CENTRAL AFRICA.

The following table and notes regarding population will perhaps furnish the reader with the best preliminary survey of what is known regarding this vast and still imperfectly explored region. The populations given are in all cases estimates, and often estimates based on very insufficient data; but, such as they are, they afford the best means of presenting in a summary statement such indications as exist of the extent to which the resources of this part of the world have yet been developed for the support of human life. Regarding those parts of this region of which no mention is made there is for the most part no basis for even the roughest estimate of population, and some parts, including a vast area north and south of the Congo, and another extensive area in the interior of the north-eastern peninsula have never yet been visited by the explorer.

Territory.	Area in square miles.	Population.	Density of Population.
Zululand,	15,900	150,000	9 to the square mile.
Gaza Country,[1]	70,000	?	Portions thickly populated.
Makombe,[2]	40,000	?	Large and industrious population.
Matabele kingdom,[3]	133,000	1,200,000	9 to the square mile.
Muata Yamvo's kingdom,[4]	133,000	1,000,000	7½ " "
Kasongo's kingdom,[5]	133,000	4,000,000	30 " "
Banks of the Middle Congo,	?	?	Thickly populated.
Mtesa's kingdom,[6]	47,500	2,775,000	58 to the square mile.

[1] North of Delagoa Bay. [2] Between the Gaza Country and the Zambesi. [3] Between the middle Limpopo and Zambesi. [4] Midway between west coast and Lake Tanganyika. [5] Between Muata Yamvo's kingdom and Lake Tanganyika. [6] Comprising Uganda, north-west of Lake Victoria Nyanza, and tributary territories to the south, west, and north-west.

It can hardly fail to strike every one that the figures given in the foregoing table to represent the density of the population are remarkably small. The

largest, 58 to the square mile, is about the same as that which represents the density of the middle provinces of European Russia, where the climate is unfavourable and the soil indifferent, and even that is for a territory only about half the size of Great Britain. Kasongo's kingdom would appear to have a population of about the same density as Khiva, where large tracts consist of burning sandy desert, or Sweden, where over a vast area the climate is inhospitably cold; and the other territories for which a definite estimate is given have a population proportionally smaller than the arid plateaux of Tibet, while it is beyond doubt reasonable to read the general statements regarding the existence in various localities of a "thick population" in the light of the more definite estimates. This rarity of the population is not to be attributed to deficiencies of soil or climate, for, according to the reports of travellers, the climate in most parts of the interior of Africa appears to be good and the natural vegetation luxuriant. Of the territories mentioned in the table the only one stated to contain extensive desert tracts is the kingdom of Muata Yamvo, which is of that character in the south, a circumstance which accounts for its having a population so much scantier than that of the adjoining kingdom of Kasongo. The chief explanation of the scantiness of the population is no doubt to be found in the condition of the people and their government. In most cases the stage of civilization reached by the people is too low for them to be able to develop the resources of their land in any but a very imperfect manner. In addition to that the generally despotic and sanguinary character of the government is equally unfavourable to the growth of the population. But what has the worst effect of all with reference to this matter is unquestionably the relations of the different tribes and states of inner Africa to one another. War and rapine are almost the permanent conditions of the South African people, and the wars are often wars of extermination. Thus we learn from Dr. Holub that among the Marutse-Mabunda, who occupy the territory in the great southern bend of the Zambesi, it is the custom, when a tribe is conquered, for the conquerors to put to death all the men, all the infants, and all the aged, to take the women for themselves, and to train up the boys in their own armies or to make slaves of them. In this way the Makololo, who in Dr. Livingstone's time were masters in this region, were completely extinguished as a separate tribe, they having been conquered in a revolt of the tribes held subject by them. The universal prevalence of slavery is another cause which keeps down the growth of the population, and it is one of the most frequent occasions of these destructive wars. The stronger tribes are constantly in the habit of making raids on their weaker neighbours to capture slaves either for their own use or to sell. In some cases whole tribes are enslaved by others, as those inhabiting the arid tracts to the east of the Kalahari Desert are by the Bechuanas in the well-watered strip bordering on the Transvaal further east. As a rule, however, the practice is to make slaves of those who are taken prisoners in war, or who are captured on expeditions organized for the very purpose. Such expeditions are greatly promoted, and the waste of human life due to this cause greatly increased by the regular traffic in slaves carried on by Arab and other slave-

merchants, who visit the interior for the purpose and drive the slaves in gangs to the coast for the purpose of exporting them beyond the limits of Africa. According to the calculations of Dr. Livingstone at least 350,000 human beings were thus seized for slaves every year; and such were the cruelties and hardships that these captives had to undergo that only about one in five, on some routes only one out of nine, reached their destination. In consequence of the representations of Livingstone and other travellers repeated efforts have been made by the British to put down this coast slave-trade, but great difficulties lie in the way of the accomplishment of this end. One important effect these efforts have had, namely, to procure the abolition of what was formerly the chief slave-market on the east coast, on the island of Zanzibar. By a treaty with the British government the Sultan of Zanzibar in 1873 agreed to stop this trade in his dominions, and since that date a church has been built on the site of the former slave-market. But this proceeding is far from having put an end to the trade itself, which has only shifted its chief centres further to the north, to Brava, Merka, Cape Guardafui, and other places on the Somauli coast beyond the control of the Sultan of Zanzibar.

The general condition of the people of this part of Africa being such as we have just described, it may reasonably be expected that when the region comes to be fairly opened up to European influence the progress of the people will for a long time to come be steady and rapid. The population is at present, as we have seen, presumably far below what the surface is capable of supporting with ease, and government and order are all that are wanting to bring the population up to that limit. When these conditions, then, are supplied, as they are certain to be sooner or later, we may look to this quarter of the world for a steady advance in population, wealth, trade, and civilization. A rapid increase of population has already been found to be the result of planting European stations in certain parts of this region.

Regarding the climate of this part of Africa we may remind the reader that, though it appears to be on the whole good (except in low-lying districts near the coast and near some of the great rivers, as the Zambesi), by far the greater part of the region lies outside of the area marked out in the general account of Africa as suitable for European settlement. The principal defect in the climate is a liability to drought, for which reason the professional "rain-maker," whose business is to bring rain when wanted by prayers and enchantments, and who is at the same time the medicine-man of the tribe, is almost everywhere in this region a person held in great esteem. Naturally this deficiency of moisture is mostly felt in the regions furthest from the sea, but in the neighbourhood of the great lakes the climate is materially influenced by the evaporation that takes place from those immense sheets of water, the rainfall in these districts being more regular and abundant than elsewhere. Since the establishment of mission stations in Uganda on the north-west of Lake Victoria Nyanza we have had the opportunity of learning something about the meteorology of that region, and from observations made by the Rev. C. J. Wilson at the town of Rubaga it appears that, though rain falls most abundantly in October and April,

yet there is no month in the year which is absolutely without rain. The prevailing winds are from the south and south-east, that is, winds blowing over the lake. It is no doubt owing to this favourable character of the climate as regards rainfall that the territory of Uganda shows a population so much denser than that of any of the others mentioned in our table. The temperature of the locality is remarkably uniform, the mean of the coldest month (August) being 68°, while that of the hottest (March) is only 71½° Fahr.

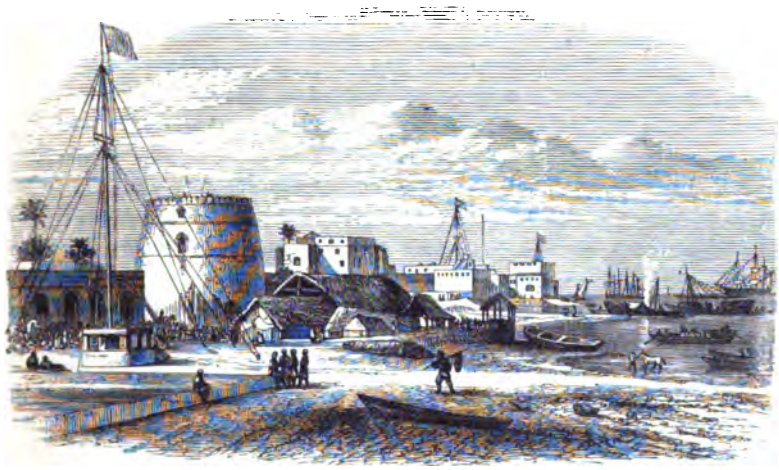
People of Uganda.

Although, as has been said above, the government of the tribes of inner Africa is generally despotic, and the state of civilization a low one, yet it scarcely requires to be stated that considerable differences exist in different parts with respect both to the organization of the government and to other elements of civilization. The **Bechuanas** on the west of the Transvaal once formed a powerful and homogeneous tribe, and though they are now divided into numerous sections acknowledging the authority of different chiefs, yet they are in some points in advance of the subjects of the extensive kingdom of Matabele, which adjoins their territory on the north. Some of their tribes show a good deal of readiness to learn from the Europeans with whom they come in contact. Notably they have begun to cultivate our wheat and to imitate the style of European houses. Shoshong, the chief town in the Bechuana territory, is noted for its manufacture of karosses. The kingdom of **Matabele** just mentioned is an unqualified despotism, the ruler being regarded as absolute owner of everything within his territory, while there is no limit even in theory to the extent of his power over his subjects. Nevertheless considerable advances have been made by some of the inhabitants of this territory both in agriculture and the arts. The Makalaka in the south, constituting the principal agricultural community of this kingdom, have fields of maize and durrah, mingled with groundnuts, tobacco, melons, &c., stretching for miles together, and they also make iron said to equal the Swedish in quality. The Mashona in the north-east again are celebrated for their industrial productions—weapons, domestic utensils of earthenware, &c. The kingdom of **Marutse-Mabunda**, adjoining that of Matabele, and filling, as already mentioned, the great south bend of the Zambesi, is described by Dr. Holub, who visited it more than once between 1873 and 1875, as having a form of government fundamentally different from that of

Matabele; for although there also the king is a despot, his power is limited by laws which place the administration of his kingdom many degrees above that of Matabele. In spite of that, however, we are informed by the same authority that the king will sometimes destroy whole villages if he fancies himself insulted or deceived. The huts and houses of the Marutse-Mabunda are said to be very clean and built in a great variety of style; and in respect of cleanliness of person also this people is described by Dr. Holub as superior to the other tribes of South Africa. This traveller also mentions the singular circumstance that the people here are in the habit of taking only one meal a day, after which they give themselves up to festivities. In the industrial arts they equal if they do not surpass the Mashonas. The kingdom of **Muata Yamvo** or **Matiamvo**, the nucleus of which is formed by the district of Lunda, is subject to a single ruler, who appoints and deposes at his pleasure the governors or chiefs of the different districts into which his kingdom is divided. The kingdom was visited in 1875 by Dr. Pogge, one of the members of an expedition sent out by the German African Society, and its government is described as extremely barbarous. Wholesale executions take place every day. The capital is Musumba, with a population of about 10,000. **Kasongo's** kingdom, to the east of that of Muata Yamvo, is hardly better governed, but is described by Livingstone and Cameron as containing some very productive and tolerably thickly populated districts. In **Uganda** (Mtesa's kingdom), in the north-west of Lake Victoria Nyanza, the government would appear from Stanley's account to be more highly organized than anywhere else in the interior of South Africa, which is no more than what might be expected from the superior density of the population in that quarter. The **Gallas** (called by themselves **Orma**), occupying an extensive territory stretching from the arid plateaux in the south of Abyssinia to the coast of the Indian Ocean south of the river Tana or Dana, are almost all nomads, and accordingly subject to no homogeneous government; but in customs and disposition are less barbarous than the majority of the inhabitants of inner Africa. In the north, where they are under the influence of Abyssinia, they have in part adopted Christianity or Mohammedanism, and the religious ideas of those who are still heathen are of a higher order than those of adjoining tribes. The position accorded to women among them is in no way degraded, and the people generally are commended by travellers for the purity of their morals. Their neighbours, the **Somaulis**, are scarcely known except on certain parts of the coast and where they adjoin the Gallas on the south. The accounts given of them are various. Usually they are described as rapacious and cruel and showing a strong antipathy to Europeans; but Capt. Miles, who visited the north Somauli coast in 1871, speaks of the people as friendly, quiet, and industrious, but miserably poor. The general account of them is, however, pretty well borne out by the fact that they all go armed, and their antipathy to Europeans has recently been substantiated by their attack upon the Italian expedition which was proceeding from Zeila to Shoa in 1879. They claim to be of Arab origin, and in religion they are all Mohammedans. Their principal occupation is the rearing of cattle, but many of them find

employment in the collection of gums, and among these of olibanum or the true frankincense, the trees producing which (three species of the genus Boswellia) grow only in the Somauli country and some parts of Arabia.

So far foreign nations exert only a comparatively slight influence in the government of that part of Africa which we now have under review. The warlike Kaffre tribe of the **Zulus** in Zululand has been brought since the Zulu war in 1879 to some extent under the control of the British. Their land has been parcelled out among several chieftains, who have been obliged to recognize the authority of the British as paramount, and British residents have been appointed, one for North, and one for South Zululand. A treaty not yet ratified



The Port of Zanzibar, showing the Fort and Custom-house.

by Portugal provides for the cession to Britain of Lorenzo Marques on Delagoa Bay by the Portuguese, who claim **Sofala, Mozambique,** and the whole territory northwards to the Rovuma, but whose actual authority extends over only a few small coast districts. The principal of these Portuguese stations is the town of Mozambique, on a small coral island near the coast, in about 15° S. lat. It is the seat of the Portuguese governor, and has a secure harbour and a small trade, principally in skins and ivory. **Zanzibar,** or the **Suaheli coast,** the maritime strip stretching northwards from the mouth of the Rovuma to the mouth of the Juba, is subject to an Arabic sultan who pays tribute to the Imam of Muscat, and the inhabitants, the Suaheli, now contain so great an admixture of Arab blood in their veins that they usually call themselves Arabs. In religion they are all zealous Mohammedans, and they are an energetic trading people, the island of Zanzibar, with the town of the same name on the west side, the capital of the sultanate, being the chief centre of commerce for the whole of Eastern Africa. The island of Zanzibar has an area of about 615 miles (nearly three times as great as that of the Isle of Man), and a population of about 210,000; the population

of the town is from 60,000 to 80,000. Seen from the sea the town has rather a handsome appearance, its white stone houses standing out against the background very conspicuously; but the interior aspect is not so agreeable, the streets being narrow, crooked, and usually filthy. Formerly the great staple of the trade was slaves, but now the principal articles of trade are ivory, cloves, pepper, and skins among the African exports, and cottons among the imports. The great traders are principally natives of India (Banyans), whose vessels, called *dhows*, are found in all seas in this part of the world, and whose agents (principally Arabs) travel far into the interior of the continent. Since January, 1873, the British Indian Steamship Company has maintained monthly communication between Aden, Zanzibar, and Madagascar, and the trade is steadily increasing. The other principal places on the Zanzibar coast, beginning in the south, are Dar-es-Salam, Quiloa, Bagamoyo (opposite the island of Zanzibar), and Mombas.

The towns in the interior of the continent are mostly aggregates of lightly constructed wooden huts, and in almost every case are surrounded by stockades designed to serve as a defence. The *tembes* or houses of the Arabs settled in the interior to the west of the Zanzibar coast, are of greater pretensions than the native huts. Those of Ujiji are described by Stanley as "solid, spacious, flat-roofed structures, with broad, cool verandahs facing the public roads." Among the Wapokomo, on the banks of the river Tana, it is the custom, according to Denhardt, a recent explorer in that region, for the youths to live together in large huts separate from their parents. On the fertile banks of the Congo, above the lower falls, the villages, or rather towns (some of them being two miles in length), are described by Stanley as having broad streets bordered by rows of well-built houses, far superior to those of the more easterly parts of Africa.

ABYSSINIA.

Abyssinia or Habesh is an ancient kingdom of Eastern Africa, now inclosed by Egyptian territory on every side except the south, where it is bounded by the country of the Gallas. It is composed of the districts of Shoa in the south, Amhara in the centre, and Tigré in the north. Its area is about 128,700 square miles, its population roughly estimated at 3,000,000, or about 28 to the square mile.

PHYSICAL FEATURES.—The more marked physical features of the country may be described generally as consisting of a vast series of table-lands of various and often of great elevations, and of numerous ranges of high and rugged mountains, some of them of very singular forms, dispersed over the surface in apparently the wildest confusion. The highest mountains, those of Semien, among which are summits reaching nearly 15,000 feet in height, occur within the angle formed by the Tacazze as it flows first north and then north-west. The chasms or rents that occur in the plateaux are often of appalling depth, and are

rendered more hideous by their impenetrable gloom, their summits frequently not being more than 200 or 300 yards asunder. Notwithstanding, however, the wild and rugged appearance of the country generally, it contains numerous valleys and plains of unequalled beauty and fertility, rich in all the most valued productions of the earth. Many of these favoured districts are spoken of with rapture by travellers, both as regards the luxuriance of their vegetation and the salubrity of their climates. The most extensive is the plain of Dembea, lying round Lake Tsana, emphatically called the granary of the country, where there reigns a perpetual spring. Owing to the peculiar configuration of the country the rivers are all remarkable for the impetuosity of their course, and for the large number of falls and rapids by which their course is interrupted. To this impetuosity the Tacazze, the principal river of Abyssinia, owes its name, meaning "The Terrible." Many of the larger rivers wind in and out at the base of lofty precipices so as to produce a succession of peninsulas, such as are not to be seen in such number anywhere else in the world. The principal lake of Abyssinia, Lake Tsana or Dembea, a large and beautiful sheet of water above 40 miles in length by about 33 in breadth at the widest part, lies at a height of upwards of 6000 feet above the sea, surrounded by numerous hot-springs and by a ring of isolated mountains almost entirely composed of basalt, trachyte, or other volcanic rocks, so that the lake may be regarded as filling an enormous sunken crater. Lake Ashangi, in Tigré, lies 8200 feet above the level of the sea. The chief mineral products of Abyssinia are iron, sulphur, coal, and salt. Coal-beds appear to extend along the whole of the eastern frontier of Shoa, but the combustible nature of that fossil is scarcely known in the country. Salt is obtained in great abundance from a salt plain on the eastern border of Tigré. In some parts the incrustation is 3 feet deep; but in general, at the depth of 2 feet it is too much mixed with earth to be fit for use in its native state. It is cut into long flat pieces by the Abyssinians, and is used as a medium of exchange.

CLIMATE, VEGETATION, AND ANIMAL LIFE.—The climate of Abyssinia is as various as its surface, and as in other mountainous countries within the tropics the zones of vegetation are a marked feature. In the lower districts, the Oolas, the intensity of the heat (the mean temperature ranging from 77° to 95° Fahr.) gives rise, especially in swampy localities, to noxious exhalations, which occasion numerous fatal diseases. In this zone the vegetation is tropical, and the swamps are covered with the densest primeval forests, haunted by lions, elephants, rhinoceroses, panthers, zebras, &c., as well as by monstrous snakes, scorpions, and hosts of noxious insects. A two-horned rhinoceros is met with, though not often. Crocodiles are found in several rivers, and a much dreaded species of formidable size in the Tacazze. The trees of this zone lose their foliage during the dry season, and do not recover it till the rains begin again in June. The rains, always accompanied by tremendous tempests, last till September, and are so violent as to put a stop to agricultural labour and all other out-door operations. The finest months of the year are those of December and January. The second zone, the Woina-Dega, from 4000 to 8000 feet and upwards, has a mean temperature ranging from 57° to 60° Fahr., and accordingly

similar to that of southern Spain and Italy, and has the most luxuriant vegetation of all the zones. The trees belonging to this zone include the terebinth, the moria or wild-olive (forming entire woods), various species of Sycomorus, the juniper, besides various trees peculiar to Abyssinia, and are almost all evergreens. All the fruits of warm climates likewise flourish here, and also all the grains and pod-fruits of southern Europe, besides a very small native grain called *tef* (*Eragrostis abyssinica*), which has already been mentioned as used for food in parts of Nubia, but which here forms the favourite breadstuff. The bread made from it is soft and spongy, with a sourish but not unpleasant taste. Two (in some places three) crops are obtained yearly, the seed being sown in one field while the crop is being gathered in the next. The rich pastures of this zone afford sustenance to abundance of horses, cattle, sheep, goats, camels, mules, and asses. In the higher parts of this zone is found the species of monkey called macac or macaque. Bees are numerous, honey being a general article of food; locusts often lay the land waste, and the saltsalya—a fly a little larger than a bee—is destructive to cattle during the rainy season. In the third and highest zone, the Dega, the day temperature sometimes sinks as low as 48° Fahr., and on the highest points the thermometer often falls below freezing-point. The Dega consists mainly of broad plateaux yielding chiefly clover and grass, and among grains only a little barley and oats. Few trees are met with except a rare species of mimosa called *kosso*, and the *gibara*, a tree or plant peculiar to Abyssinia, growing to the height of about 16 feet, bearing bright green leaves with red ribs, and withering after it has blossomed.

MANUFACTURES AND COMMERCE.—Manufactures are unimportant, but are not entirely neglected. The principal is that of cottons, which are woven in looms of very simple construction. The Abyssinians are said to excel in tanning, and they make a good deal of parchment from sheep and goat skins. The foreign trade of Abyssinia is chiefly carried on at Massowa, an Egyptian town on the Red Sea, north-east of Abyssinia. The merchants are mostly Mohammedans. The principal exports are coffee, civet, honey, wax, gum, hides, butter, ostrich feathers, ivory, and rhinoceros horns; the imports, pepper, antimony, bottles, needles, silks, turkey-red cloths, tobacco, cotton, firearms, &c.

PEOPLE, &c.—The population of Abyssinia is composed of various tribes, whom it is very difficult to mark off from one another by physical characteristics. All the inhabitants, to whatever race they belong, vary in colour from a dark brown to a yellow brown, compared by Bruce to pale ink. Along the northern and western base of the plateaux dwell the mortal enemies of the Abyssinians proper, a tribe called by the Abyssinians, on account of the extremely dark colour of their skin, Shankallas, that is, "black savages." In the south of Shoa and among the soldiery throughout the country are numerous Gallas. There are no negroes in Abyssinia except the slaves, who are likewise the only blacks in the country. Corresponding with the variety of tribes there is a great variety of dialects, but most, though not all, of these may be referred to two languages radically different from one another. These are the Amharic and Tigreic. The former, spoken to the south and west of the Tacazze, has

been adopted as the court and official language, and is rapidly gaining ground, especially in the centre and south. The latter, also called the modern Geez to distinguish it from an older dialect now extinct, but which was the principal language of Abyssinia at the time of the introduction of Christianity, and is that in which the Abyssinian Scriptures are written, is spoken to the east of the Tacazze. The great majority of the inhabitants are adherents of Christianity, which was introduced into the country in the fourth century. Like the Copts, Armenians, and other eastern sects they are Monophysites, or believers in the oneness of the nature of Christ, and the Abyssinian Church is to a certain extent under the authority of the head of the Coptic Church, the

Christian Warriors of Shoa.

patriarch of Alexandria nominating and consecrating the *Abuna* or local head of the church in Abyssinia, who resides at Gondar. The whole country swarms with priests and members of religious orders, who have as a rule no great reputation for sanctity, but are said rather to be conspicuous for their immorality and indolence. They are supported partly out of ecclesiastical property, partly by the sale of absolutions and by begging, and the whole religion of the people appears to consist in the observance of empty ceremonies the meaning of which is not understood. Such being the state of matters as regards religion, it is almost superfluous to mention that education receives but little attention. Only those children who are intended for the church receive a little instruction. The others are allowed to grow up utterly uncared for, so far as their mind is concerned, and at the age of five or six they are put to some kind of employment. The few Mohammedans and native Jews (Falashas) in Abyssinia are morally far above the rest of the population. The former devote themselves to trade and the farming of the revenues; the latter, unlike their kinsmen in other parts of the world, are industrious agriculturists and handicraftsmen.

GOVERNMENT AND CHIEF TOWNS.—At the time of the British expedition to Abyssinia in 1868 the whole country was subject to a single ruler; but after the overthrow of that ruler, which followed the capture of the fortress of Magdala by the British, the country fell into a state of anarchy, and two kings appear to have ultimately established themselves, one in the north and the other in the south, the latter having the title of the King of Shoa. In 1878 the former made an attempt to exact tribute from the latter, but the attempt failed, and the two kings concluded a formal peace. The capital of the northern

Magdala, from below the height of Islamgie.

kingdom is Gondar, a place of 8000 or 10,000 inhabitants, occupying a basaltic hill about 22 miles north of Lake Tsana; but the place selected by the present king for his coronation was Axum in Tigré, now a place of less than 3000 inhabitants, but in ancient times, and till the advent of the Arabs in the seventh century, the capital of a kingdom which embraced besides Abyssinia a considerable territory on different sides. The King of Shoa has his seat at Ankober, which is composed of about 3000 huts scattered over the ridge and western declivity of a majestic mountain, on the very summit of which stands the royal residence, a very unpretending building.

ISLANDS IN THE INDIAN OCEAN.

MADAGASCAR is a large island off the south-east coast of Africa, having a length of nearly a thousand miles, an average breadth of about 250 miles, and an area of 228,500 square miles, or more than two and a half times the size of Great Britain. It is thus larger than any of the islands of the Eastern Archipelago except Borneo.

The island of Madagascar may be described in the most general terms as consisting of an elevated core with an average height of from 3000 to 5000 feet, overlooked by mountains rising in some cases to nearly 9000 feet, and surrounded by plains with a general elevation of only 400 to 500 feet above the sea-level. The elevated core, however, occupies a much larger proportion of the surface in the north and east than in the west and south, and the greater portion of the island to the south of lat. 23° S. belongs to the low region. But this low region does not consist entirely of plains, for to it indeed belong the only proper mountain ranges known to exist in the island, these ranges lying in the west and stretching from north to south, one of them apparently in a continuous line about 600 miles in length. Geologically the elevated core consists almost entirely of granite and other igneous rocks, while the lower region is composed chiefly of secondary formations. The former region is traversed by a line of extinct volcanic craters, some of which show signs of a comparatively recent activity, and this activity is still manifested occasionally in what may be regarded as the extremities of this line of volcanic action, the vents of the Comoro Islands in the north-west, and of Réunion in the south-east. Among the more remarkable fossils of the sedimentary strata of the island are remains of the hippopotamus, an animal no longer found in Madagascar, those of gigantic tortoises, and of a gigantic struthious bird recently extinct, known to naturalists as the Æpyornis, whose egg, measuring 12 by 9 inches, is larger than that of any other known bird. The rivers of Madagascar are exceedingly numerous, yet few of them offer, even to a moderate extent, the advantages of internal navigation.

The **climate** of Madagascar is various. The heat on the coasts is often intense, but in the interior the temperature is more moderate. On the coasts the rains are nearly constant, beginning in the evening and lasting sometimes all night; in the interior the winter is dry and agreeable. The greatest amount of rainfall takes place on the east coast, and especially on the north-east, the part directly exposed to the summer monsoon. The mean annual rainfall at Antananarivo, near the centre of the island, is about 39 inches. The elevated region of the interior and the districts on the west coast are healthy, but on the east coast fever prevails which is specially fatal to Europeans.

The most striking feature in the **vegetation** of Madagascar is a belt of dense forest, with an average breadth of about fifteen miles, passing round the whole island and broken only by a gap in the north-west, where the two ends of

the forest overlap. It is found at all levels, from 6000 feet to the water's edge, which it touches in the north-east, the part of the island where the rains are most abundant, and where accordingly the forest is broadest (about forty miles). The trees of the forest include lofty palms, hard-wooded exogens supplying a great variety of beautifully veined and durable timber, and a large number of trees remarkable for the splendid character of their blossoms. Of all the trees of Madagascar the most striking is the ravinala or traveller's tree (*Urania speciosa*), which gives quite a unique character to the maritime plains. In its appearance it resembles a palm, its stem being crowned by a semicircle of oblong leaves, somewhat like those of the banana, spread out vertically in a fan shape; and it owes its name to the fact that the traveller may supply himself with water from it by piercing or breaking the lower end of the leaf-stalks.

Of the vegetable products grown for food by far the most important is rice, and next after rice come manioc or cassava, sweet-potatoes, beans, tomatoes, ground-nuts, and in the warmer parts yams. Ginger, pepper, and indigo grow wild in the woods; cotton, sugar-cane, coffee, tobacco, and hemp are cultivated. Rice is exported to some extent, and among other vegetable exports are gum-copal and india-rubber.

The **zoology** of Madagascar is of peculiar interest to naturalists on account of its largely isolated character, and because of the fact that such affinities as it does present to the faunas of other regions often connect it more closely with southern Asia than with the neighbouring continent of Africa. So much is this the case that naturalists have been led to regard Madagascar (along with the Mascarene Islands and other groups in the Indian Ocean) as remnants of a former continent or archipelago, which was never connected with Africa as that continent exists at present, but which must have been connected at one time with land that now forms part of the continent of Africa, although severed from that continent at a period remote enough to account for the absence in Madagascar of many types found in these other regions, and the presence in Madagascar of many types not found in these regions. The mammals of Madagascar are almost throughout the entire list different not only specifically but generically from those of all other lands. Whole families of the larger mammals are altogether absent in that island. None of the larger felines, for example, are found there; and there are no native ungulata except a species of river hog, not even one of the numerous antelopes that scour the plains of Africa. Humped cattle, it is true, are now found in immense herds in the island, and form a large part of the wealth of the inhabitants; but these do not appear to be native, but to have been introduced from Africa at a remote period, as the Cape sheep and horses have been more recently. Of the land-birds of the island only a small proportion of the species are identical with those found in the adjacent continents, and most of these are birds of powerful wing or of wide range. The most characteristic families of the mammalian fauna of Madagascar are the Lemuridæ, the insect-eating Centetidæ, and, among the Carnivora, the Viverridæ or civet family. Of the first-mentioned family the two largest sub-families belong exclusively to Madagascar, while other members of the family are found

in Africa and India. The singular animal called the aye-aye, allied to the lemurs, is peculiar to the island. The Centetidæ are peculiar to Madagascar with the exception of a single genus, which is found in the West Indies, a fact that has led some zoologists to imagine that the old continent to which they suppose Madagascar to have belonged must have extended westwards to that part of the world. The Viverridæ, to which family most of the carnivorous animals of Madagascar belong, are now chiefly found elsewhere in Africa and the south-east of Asia, though in miocene times they flourished also in Europe.

The **minerals** of Madagascar comprise some of the most useful metals in tolerable abundance. The most largely developed is iron, which in some places is found almost in a pure state. "In some of the hills it is so plentiful that it is difficult to get a bearing with a compass from the deflection caused by the iron in the ground." (*The Great African Island*, by the Rev. James Sibree, jun.) Copper and silver, iron pyrites, antimony, oxide of manganese, rock-salt, nitre, and a substance resembling plumbago, used by the natives to colour and glaze pottery, are also found.

The **inhabitants** of Madagascar, who are known by the name of Malagasy, appear to form substantially a single race, though they have received a considerable intermixture of African blood, chiefly through the importation of slaves, and also a certain amount of Arab intermixture. All the tribes speak substantially the same tongue, are (if pure-blooded) of the same colour (a light olive), and have much the same customs. Differences and jealousies have, however, long existed among them. The Hovas are the ruling tribe; their proper country is the elevated region of the interior, but they have extended their sway over most of the island. Among the other chief tribes are the Betsimasaraka on the east coast, the Betsileo in the south central region, and the Sakalava in the west and north. The total population of the island is estimated at 4,000,000, or about 17½ to the square mile, a density far below what the island is capable of easily sustaining. The Malagasy belong to the Malayan race of peoples, and speak a Malayan language. All the Malagasy literature is now in the Roman character, introduced by the missionaries in 1818. Several newspapers now appear in the language.

The people of Madagascar are socially divided into three classes, Andrians or nobles, free commoners, who are called by the same name as the dominant tribe, Hovas, and slaves. This last section of the population consists, or till recently consisted, partly of debtors and criminals and their descendants, partly of prisoners in war and their descendants, and partly of imported Africans; but the last-mentioned class of slaves was declared free in 1877. The condition of the slaves is not as a rule an unenviable one. In the coast districts the houses of the better class are built of wood, and so good is the native carpentry that they are perfectly firm, though joined without nails. The dwellings of the lower classes are constructed of bamboo or rushes, or even of clay. In the interior, where a kind of red clay is abundant, that material is largely used for building. In former times, when the country was in a more unsettled condition, the villages were almost always built on the tops of hills, but during the present

century this precaution has not been deemed so indispensable. In general the Malagasy show much aptitude for the manual arts. As silversmiths, gunsmiths, and carpenters they rapidly acquire the art of Europeans; and with looms of the rudest construction they make excellent and handsome cloths. The principal article of dress with both sexes is the *lamba*, a piece of cloth about three yards long and two broad, which is folded round the body above the arms, one end being thrown over the shoulder. The religion of the Malagasy is a rude idolatry, a kind of fetishism or worship of charms, and numerous gross superstitions are current among them. One of the most prevalent superstitions is similar to that which we have already met with on the Loango coast, forbidding the performance of various ordinary actions. Any action forbidden by such a superstitious custom is said by the Malagasy to be *fady*, and these actions differ to some extent in different localities. In some tribes it is *fady* for a person to mention his own name. Formerly an accused person was in most cases subject to the ordeal of the tanguin or tanghin, a poisonous nut which operates in small doses as an emetic. He swallowed three bits of the skin of a fowl, and then drank a broth containing the tanghin. If he threw up the bits of skin he was acquitted; otherwise he was condemned and executed at once. This practice was abolished under a treaty with the English in 1865. Of late years Christianity has made considerable progress in the island. Madagascar was first made the scene of missionary labours in 1818, but, some years after, the missionaries were banished and the native Christians persecuted, and the island was not re-opened to Europeans till 1862. Since then Christianity has been recognized by the government, thousands of converts have been made, and numerous native churches built; and the indirect influence of Christianity is said to be manifest in the improved clothing and dwellings of many of the people, the higher tone of feeling with regard to the relations of the sexes and the marriage tie, in the abolition of cruel punishments, and the spread of education. Since the recognition of Christianity by the government all public work has been stopped and all markets closed on Sunday, a legal day of rest being thus established.

The **government** of Madagascar is a monarchical despotism, but the authority of the supreme ruler becomes weaker the further you are removed from the capital. Public assemblies are still called and addressed by the sovereign, but not consulted. A body of judges sits constantly in public to hear complaints and settle disputes, but they are not guided by any written code of laws. The **capital** is Antananarivo, a town of upwards of 100,000 inhabitants, situated near the centre of the island on the summit of a rocky ridge from 400 to 500 feet above the surrounding country.

On the east coast of Madagascar is the small island of **St. Marie**, occupied by the French since 1820. It has an area of 350 square miles (about one and a half times the size of the Isle of Man), and a population of about 6000. On the north-west coast is the still smaller island of **Nossibe** (75 square miles), which was ceded to the French by the Sakalava in 1840. It is of volcanic origin, produces rice, coffee, and sugar, and has a population of 11,000.

THE COMORO ISLANDS are a group of four islands lying midway between

the north-west coast of Madagascar and Africa. The largest, Great Comoro, has an area of about 500 square miles, or more than twice that of the Isle of Man. They are of volcanic origin, and Great Comoro possesses an active volcano upwards of 8000 feet in height. Mohilla, the most important of the islands, is the seat of an active trade between Madagascar and the east coast of Africa, and contains about 7000 inhabitants, the descendants of Arab Suaheli, Sakalava (Malagasy), and other immigrants, all zealous Mohammedans. **Mayotte**, one of the group, has been in the possession of the French since 1841.

THE MASCARENE ISLANDS, so called after their discoverer Mascarenhas, a Portuguese navigator, are a group of three islands east of Madagascar, the largest and westernmost, **Reunion** or **Bourbon** (970 square miles), belonging since 1643 to France; the other two, **Mauritius** or the **Isle of France** (713 square miles) and **Rodriguez** belonging to the British, to whom they were ceded by the French in 1814. Like the Comoro Islands they are of volcanic origin, and are chiefly composed of rugged and irregular mountains. Réunion has a volcano (Piton de la Fournaise) still active. The climate is warm but healthy. In Mauritius the range of the thermometer is from about 55° to 90° Fahr. Violent and destructive hurricanes are frequent, more especially in March and April. All the islands are remarkably fertile, and the two larger produce great quantities of sugar (this product making up in Mauritius two-thirds of the annual value of the exports), and in addition to sugar, coffee, cocoa, rice, manioc, indigo, aloes, cotton, vanilla, cinnamon, cloves, and other spices. The principal exports of Mauritius besides sugar are aloes fibre, vanilla, cocoa-nut oil, and rum. The products of Rodriguez are less varied, the principal being rice, wheat, and maize. The chief export of that island is salt-fish. The revenue of Mauritius is derived chiefly from customs duties, licenses on trades and professions, and railway traffic receipts, there being in that island nearly 70 miles of railway. The language chiefly spoken in Mauritius as well as Réunion is French. In the two chief islands, and especially in Mauritius, the density of the population corresponds to the extraordinary fertility of the soil. In Mauritius the density is nearly 500 to the square mile, in Réunion about 240; in Rodriguez, on the other hand, only about 34. The actual population of the first of these islands was in 1878, 354,600; that of Rodriguez, 1459; that of Réunion in 1877, 182,000. The labouring population in the two larger islands consists largely of coolies, Indian or Chinese, those of Mauritius being almost entirely from India. In 1878 the whole population of this island of Indian origin was 242,000, among whom were five males for every three females. The chief town in Mauritius is Port Louis with a population of 26,000; those of Réunion are St. Denis (40,000), St. Pierre (30,000), and St. Paul (25,000).

DEPENDENCIES OF MAURITIUS. Besides Rodriguez there are numerous islands in the Indian Ocean dependent on the British governor of Mauritius. The principal of these are the islands forming the group of the **Seychelles**, lying about fifteen degrees to the north of the Mascarene Islands. The total area of this group is about 100 square miles; the population in 1878, 13,344, among whom there is a considerable proportion of liberated Africans landed here

from slave-dhows captured by British cruisers. The largest and most important member of the group is Mahé. All the islands have excellent harbours, and are covered with a luxuriant vegetation, principally palms, among which the date-palm and the coco-nut are the chief. Peculiar to the group is the palm known to botanists as the *Lodoicea Seychellarum*, the fruit of which, the largest tree-fruit in the world, sometimes weighing forty pounds, was known and regarded with wonder long before the tree itself was known, being found on the coasts of

Port Louis, Mauritius.

the Maldive Islands, to which it was drifted by currents. To the products of the group have recently been added coffee, cacao, and vanilla, and, according to a blue-book report, "it will not be long before Seychelles gets renowned" for these commodities. "The Seychelles climate and soil," the same report adds, "give practical proof that no country in the world can surpass these islands, while few even of the most favoured for the purpose can equal them in the quality of the produce above named, or in the facility with which it can be raised." Besides the Seychelles the still smaller group of the **Amirante Islands** to the south-west are also dependent on the governor of Mauritius, and so also are several other islands, producing principally coco-nut oil, scattered over the seas between the Seychelles and Madagascar.

AMERICA.

America or the New World, the largest of the great divisions of the globe except Asia, is washed on the west by the Pacific, on the east by the Atlantic, on the north by the Arctic, and on the south by the Antarctic Ocean. The characteristic feature of this section is its immense meridian length, in consequence of which it lies under all the zones except the Antarctic, stretching through nearly 126 degrees of latitude, if we reckon to the southernmost point of the mainland of South America, and through 128 degrees, if we reckon to the south point of Tierra del Fuego. The extreme points of America are—north, the most northerly point of Boothia Felix, in the Strait of Bellot, lat. 71° 56′ N.; south, Cape Froward on the mainland, lat. 53° 54′ S., or Cape Horn on Tierra del Fuego, lat. 55° 59′ S.; west, Cape Prince of Wales in Alaska, lon. 167° 59′ W.; and east, the Point de Guia in Brazil, lon. 34° 47′ W.

The entire American continent has a length of about 9500 miles, a maximum breadth, between Cape Prince of Wales and Cape Charles in North America, of 3500 miles, a coast line of 43,200 miles, equal to about one mile of coast for every 340 square miles of mainland area, that area amounting to about 14,650,000 square miles, while the total area including the islands (but not the northern archipelago) is about 14,753,000 square miles, or 164 times that of Great Britain, the area of Asia being 191 times the latter amount.

PHYSICAL FEATURES.—Two-thirds of the area of America is flat or comparatively low-lying, and in both North and South America the relative position of highland and lowland is very uniform. The lofty mountain systems of the Rocky Mountains and the Andes, which stretch from north to south between the extremities of the continent, on a base of 4,586,000 square miles, are generally at no great distance from the west shore, and on the east sink gradually down into boundless flats, on which only a few isolated mountain groups occasionally rise. The only considerable interruption of the continuity of these two great mountain systems consists in the depression of the Isthmus of Panama, which rises at most parts only from 500 to 600 feet above sea-level. Between the two mountain systems there are both discrepancies and resemblances; but the discrepancies are more numerous and decided. Thus the cordilleras of South America descend by steep short terraces to the sea-shore, or to a narrow belt of level land immediately adjoining it, form regular chains, display the loftiest masses of all America, and send out only short branches to the eastern plains; whereas, on the contrary, the North American cordilleras lean, in the west, on elevated plateaux, so as to favour a large development of rivers, are less vertical in their structure, and less high, and send to the east more extensive ramifications. The great American plain commences with few interruptions at the eastern

base of the mountains, and stretches from the shores of the Arctic Ocean to the south extremity of Patagonia.

The connection between the two continental masses of North and South America is geologically of comparatively recent date. As late as the tertiary period these two masses were separated by a strait instead of being connected by an isthmus.

RIVERS AND LAKES.—Of the many advantages the New World has over the Old, none is so striking as the extent of its river systems, which on the east side of the mountains fill almost every part of the continent. Sometimes rivers traversing the same plains, and nearly on the same levels, open communications with each other, especially when their waters are high, and form a kind of network. In this way it frequently becomes difficult to fix the exact limits of the basin of any river, and to say where the watershed separating it from other basins properly begins. Of this peculiarity there is a remarkable instance in the Cassiquiari, which, branching off from the Rio Negro and joining the Orinoco, forms a kind of natural canal, uniting the basins of the Orinoco and the Amazon. South America has the largest river in the world in respect of volume of water, and North America possesses the largest fresh-water lake, as well as the most extensive group of lakes in the world.

FLORA AND FAUNA.—Both the flora and fauna of the New World exhibit, as might be expected, characteristic differences from those of the Old. As regards the vegetable kingdom no more striking illustration could be given of the separation between the Old World and the New than the fact that out of the thousand species composing the palm family, so abundantly represented in both hemispheres, only three (the *Elæis guineensis* or oil-palm, the *Cocos nucifera* or coco-nut palm, and the *Raphia vinifera*) are common to both. It is also worthy of remark that, since the commencement of active communication between the inhabitants of the Old World and the New, the former has given to the latter a greater number of important food-yielding plants and a greater number of weeds than it has received thence. The only valuable grain for which the Old World is indebted to the New is maize, which was almost the only grain cultivated by the natives before the advent of Europeans, and the only other food-plant of the first importance derived from the western hemisphere is the potato. In the case of weeds the difference is even more striking. For while the whole of the North American continent is more or less overrun with European weeds (according to Agassiz the roadside weeds of the New England states to the number of 130 are all European), only a very few American weeds have established themselves in Europe.

With respect to the fauna of the New World it has been observed in general that it belongs as a whole to a lower stage of organization than that of the Old. The animals most distinguished for size, strength, and ferocity of disposition are confined to the Old World, their nearest allies in the New World being notably weaker and less daring and savage; and so also the swiftest and most agile, the most beautiful and graceful among quadrupeds, and likewise those most useful to man are peculiar to the Old World. On the other hand, the majority of the Edentata, including the whole family of the sloths and those singular animals the

anteaters and the armadillos, belong to America. Like the Old World flora the Old World fauna also has invaded the New World with more success than that of the New has done the Old. Among domesticated animals the Old World has supplied the New with horses, cattle, and hogs, while among wild animals the black and brown rat have in turn occupied a wide domain in North America, and mice, sparrows, and a whole host of insects, some of them very destructive, but others, like the honey bee, known to the Indians as the "English fly," useful, have been equally successful emigrants. As against that, but few of the pests that prey on the American fruit-trees have yet obtained a footing in Europe, though there is one important exception in the gall-louse (*Phylloxera vastatrix*) which has wrought so much damage in the vineyards of France and other countries.

PEOPLE.—The origin of the indigenous population of America cannot now be traced. There can be no doubt, however, that man was in existence at a very early period in the western hemisphere. Human skeletons, together with articles made by man, have been found near New Orleans, in Florida, in Missouri, Kansas, California, in the volcanic deposits on the coast of Ecuador, and elsewhere, all under conditions indicative of remote antiquity. Still more numerous evidences, however, exist to show that America was inhabited at a later date by a people who were yet long antecedent to the present races or tribes by which the soil is occupied. These evidences are found in a number of mounds and inclosures scattered over the valley of the Mississippi containing ornaments and utensils belonging to the people by whom they were built. From the character of these remains it can be fairly inferred that the social condition of this primitive people was far above that of the wandering Indians who succeeded them. Most of the inclosures are perfectly regular in form. Squares and circles are the prevailing shapes, but there are also quadrangles with unequal sides, ellipses, and polygons. Some of them appear to have served as fortifications and others to have been intended for religious and other services. The mounds or hills are generally conical in form, often truncated, and sometimes terraced, and have a stair or winding path leading to the summit. Their use seems to have been for sacrifices or other religious rites or for burials.

The Indian tribes of America, with the exception, perhaps, of the Esquimaux, have all so strong a resemblance to each other in physical formation, and also, though in a less obvious degree, in intellectual character, as to leave no doubt of their being one family. They are distinguished by long straight black hair, prominent cheek-bones, and little hair on the face. The eyes are small, deep set, and often oblique, the nose broad and arched, the mouth large, the lips thick. The race which they most nearly resemble in outward appearance is the Mongolian, the most prominent distinguishing feature between the two being the arched nose of the American race. The colour of the skin is for the most part brown, but the shades are of almost every degree of darkness.

The languages of the race are very numerous, amounting to upwards of four hundred, and although they show a certain affinity to one another in their somewhat complicated structure, yet they differ from one another to a remarkable

extent in their roots, and present but few points of resemblance with the languages of any other part of the world. Their most marked general characteristic is the prevalence of compound words of great length formed with great regularity and system, on which account they are often called polysynthetic languages. So far is this method of synthesis carried that often single words embrace a whole sentence. The most prominent part of speech is the verb, which absorbs noun, pronoun, and adjective. Declensions proper are altogether wanting in many dialects, but the verbs are always complete and regular in every form.

When the Europeans first became well acquainted with the New World they found a population presenting man under many aspects and society in various stages, from the semi-civilization of Mexico and Peru to the brutal abasement of savage life. The indigenous civilization spread simultaneously from three central points—the lofty plains of Peru, Cundinamarca, and Mexico. The Peruvians, under their princes and high-priests, the Incas or sons of the sun, were trained by the forms of the mild religion of Manco Capac into a peaceable but effeminate people. The Toltecs and Aztecs of the high land of Anahuac were ruled in a more politic and warlike spirit by the Caciques; while in the centre, betwixt Peru and Mexico, the Muiscas in Cundinamarca had a spiritual and a temporal head. All of them, from Lake Titicaca to Mexico, practised agriculture, mechanical trades and arts, and have left behind them remains of a peculiar civilization. Ever since the discovery of America at the close of the fifteenth century Europeans of all nations have crowded into it; and the comparatively feeble native races, in consequence of the barbarous treatment to which they have been subjected, have greatly diminished in numbers, while to a large extent also they have lost their distinctive features by intermixtures with whites, and also with negroes brought from Africa to work as slaves. These mixed races the Spaniards distinguish by a variety of names, as Mestizos (of mixed European and Indian blood), Mulattoes (of mixed European and Negro blood), Zambos (of mixed Negro and Indian blood), &c., while the native descendants of European parents are called Creoles. In some parts of North America the Indians, where kindly treated, have shown a great and even in a few cases a surprising capacity for advancing in civilization, and the tendency of the race to dwindle away before the European intruders has in consequence been arrested. In any case, however, it seems to be the destiny of this race to be ultimately absorbed by the greatly more numerous descendants of European stock. So far has this absorption in some cases already proceeded, that according to Prof. Wilson of Toronto, the blood of the so-called "red man" flows in the veins of every class of Canadian from the highest to the lowest, and many of those who are treated by the government as Indians are as white as many of their "pale-faced" countrymen. The name Indian, it should be mentioned, is an entire misnomer, and is originally due to a mistake of the discoverers of America, who thought that the land discovered by them was part of India. The designation "red men" is also to some extent a misnomer, or at least is not due to the colour of their skin, which we have already seen is brown, but to their

practice of colouring their faces with the ochre found in the soil. The total population of the New World, according to the estimates of Behm and Wagner's *Bevölkerung der Erde* for 1880, corrected for the United States in accordance with the results of the census of that year, amounts to about 98,500,000. Of this total about 55 per cent are whites of Germanic origin, and the whites and mixed races of Romance origin may be estimated to make up about 23 per cent, Indians (chiefly in Mexico and the countries to the south) about 12 per cent, and Negroes (in the United States and Brazil) about 11 per cent.

DISCOVERY AND NAME.—The merit of first unlocking the New World to modern Europe belongs to the Genoese Christopher Columbus, who, after a voyage of discovery as dangerous as it was fortunate, discovered, in October, 1492, Guanahani, one of the Bahamas, and named it San Salvador. The mainland was first seen in 1497 by Sebastian Cabot, who sailed under the patronage of Henry VII. of England. It is certain, however, that Europeans had in the earlier part of the middle ages, and on different occasions, discovered the American coasts; and it has even been pretty well established from Chinese books that it was known to the Chinese as early as the fifth century after Christ. So much at least is beyond doubt that at that period Chinese vessels had sailed to a country which they called Foosang, and it is asserted that no other part of the world corresponds to the description given of Foosang by the Chinese except Central America. The Europeans who first sighted land belonging to the New World were Northmen, who proceeding from Iceland discovered the north polar land of Greenland. The Icelander Bjorne Herjulfson, in 986, got a glimpse of the coasts of Massachusetts and Rhode Island, which in the year 1000 were visited by Leif the Lucky, and named by him Vinland. These and other discoveries, however, had no influence on the enterprise of Columbus, and it is only since the voyage of that navigator that regular communication has been maintained between the two hemispheres; so that that event must remain for ever one of the first consequence in the history of civilization. The honour of giving name to the continent has nevertheless fallen to a different person from the discoverer. The name America is derived from the first part of that of Amerigo Vespucci, a navigator belonging to the early part of the sixteenth century, whose descriptions of the New World were very popular in their time. The name was first proposed only for certain parts of South America, the discovery of which was attributed to Vespucci, but once suggested it gradually acquired a wider application, and its general adoption as the name for the whole continent was due to the great atlas of Ortelius published in 1570.

NORTH AMERICA.

North America, the northern half of the western continent, or New World, measured from the most southerly point of Mexico, extends from lat. 15° N. to the Arctic Ocean; but if we take it to include Central America with the Isthmus of Panama, which politically belongs to the South American states of Columbia, then its southern point lies in about 7° N. East to west it extends from 55° 30' to 168° W. lon. The total area, including the West Indies and Central America, is about 7,900,000 square miles, or about seven-thirteenths of the whole area of the New World. The length of the coast-line is estimated at about 27,500 miles, or about one mile of coast for every 288 square miles of mainland area.

PHYSICAL FEATURES.—The backbone of this continent, as we have already seen in treating of the New World as a whole, is formed by the Rocky Mountains. This mountain system, where it is most fully developed, may be divided into three chief regions—on the east the double chain of the Rocky Mountains proper, then a region of lofty, broken, and irregular table-lands, and on the west a very high and irregular mountain chain, which includes the Pacific Alps of the north-west, the Cascade Range in British Columbia and the north-west of the United States, the Sierra Nevada of California, and the Peninsular chain of California, all the chains belonging to the system having some link of connection, however obscure. The base of the mountain system at the broadest has a breadth of a thousand miles, and the average eastern slope seldom exceeds ten feet in a mile. The highest part is south of lat. 53° N., where numerous peaks rise far above the snow-line. In Colorado there is a great number of peaks which rise more than 14,000 feet above sea-level; Mount Hooker on the eastern border of British Columbia is said to have a height of 15,700 feet, and Orizaba in Mexico rises to a height of 17,380 feet. Further north the summits decrease to 4000 and 2000 feet, though Mount St. Elias, a volcanic cone on the frontier of Alaska, has a height of nearly 15,000 feet according to the lowest estimate. The most extensive table-land of the Rocky Mountains is that known as the Great Basin or Fremont's Basin, bounded on the west by the Sierra Nevada and on the east by the Wahsatch Range, and having an extent of about 450 miles both east and west and north and south. The lowest part of this basin is 4200 feet above sea-level, but the depressions occur near its outer margin, where all the drainage is collected in salt lakes, the central portion rising to a much greater elevation and being broken into a series of detached ridges. Another extensive plateau, from 6000 to 8000 feet in height, occupies the central part of Mexico, and is overlooked by several volcanoes; and a third occurs in New Mexico with an elevation of from 4000 to 6000 feet. The only other great mountain chain of North America is that called the Alleghanies or Appalachian Mountains near the east coast. This system stretches from Georgia and Alabama in the south-west to the Gulf of St. Lawrence in the north-east, and we may even include in it the Watchish or Wotchish Mountains of Labrador. In the north-east

it comprehends the Green Mountains, the White Mountains, and the Adirondack group; from Pennsylvania southward Alleghany Mountains is the name that strictly belongs to it. The Alleghanies consist chiefly of four separate groups crossing the country in the same general direction from south-west to north-east. In Pennsylvania, that is, about the middle of the system, the breadth of these mountains including the intervening valleys is about a hundred miles. Towards the extremities they decrease in breadth but increase in height. Their mean elevation does not exceed 2500 feet. The Black Dome in North Carolina is 6707 feet high, and Mount Washington in New Hampshire, 6228 feet. In Pennsylvania there are no high peaks, and the crests of the ridges seen at the horizon appear as unindented lines. Among the remarkable features of this mountain system are the gaps or chasms through which the Hudson, the Delaware, and the Potomac find a passage.

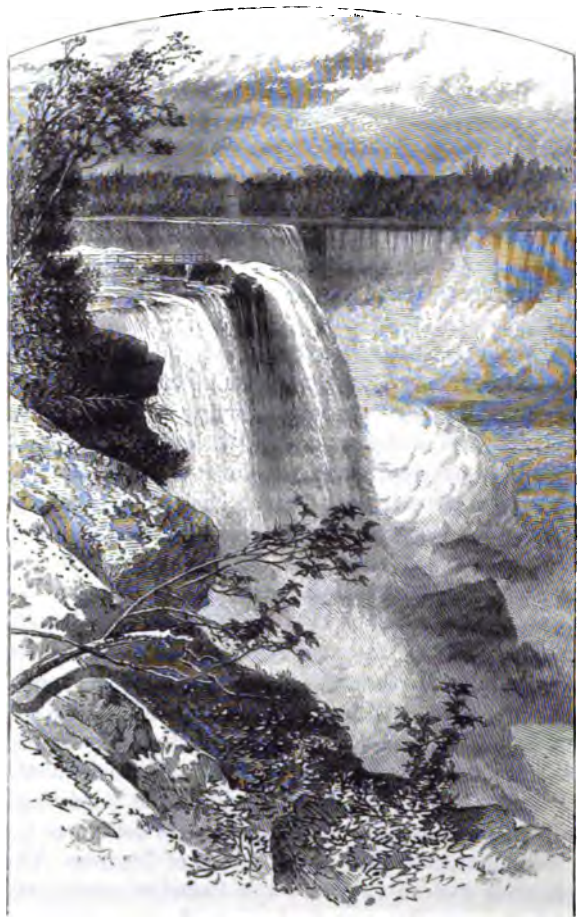
RIVERS.—The great watershed of the North American continent is formed by the Rocky Mountains, from which the rivers flow on the east side to the Atlantic Ocean, the Mexican Gulf or the Arctic Ocean, and on the west to the Pacific. At more than one point in the system the water-parting is formed by a lake or marsh sending a stream on one side to the Pacific and on the other to the Atlantic. Examples of this have been found in British Columbia, in the Wind River Mountains, and the Yellowstone Region, the last occurring at what is hence known as the Two Ocean Pass, in 44° 5′ N. lat., and 110° W. lon., at the height of 8081 feet above sea-level. The principal rivers of North America are the Mississippi, Missouri, and the St. Lawrence. The former has its origin in the Rocky Mountains, at a part of that system where not only it but also two others of the largest American rivers, the Columbia and the Colorado, take their rise within a radius of ten miles. The Missouri, which is the longest tributary of the Mississippi and is more properly regarded as the upper part of that river itself, is formed, about lat. 45° 20′ N., lon. 110° 30′ W., by the junction of three streams, and falls into the sea in the Gulf of Mexico in lat. 27° N., traversing in its course a distance estimated at about 4150 miles. The St. Lawrence rises under the name of the St. Louis in lat. 47° 45′ N., lon. 93° W., flows north-east by north, and falls into the Gulf of St. Lawrence. It is more than 100 miles wide at the mouth. The Arkansas, Red River, and Ohio, are all tributaries of the Mississippi, and have their sources in the Rocky Mountains. The Rio Grande del Norte has also its source in the Rocky Mountains, and falls into the Gulf of Mexico. The same mountains give rise on their eastern slopes to the Canadian rivers, the Saskatchewan, Athabasca, and Peace. The principal rivers flowing from the

River.	Length.	Area of Basin.	River.	Length.	Area of Basin.
	miles.	sq. miles.		miles.	sq. miles.
Mississippi-Missouri,...	4150	1,244,000	Rio Grande del Norte,	1800	240,000
St. Lawrence, ...	750*	336,000	Columbia, ...	1400	298,000
Peace and Mackenzie,.	2000	443,000	Colorado, ...	1200	257,000
Saskatchewan and Nelson, ...	1730	432,000	Yukon, ...	2000	?
			Fraser, ...	1000	?

* Below Lake Ontario.

western slopes are the Colorado, Columbia, Fraser, and Yukon. The table in the preceding page shows the estimated length of course and area of basin of the principal North American rivers.

LAKES.—In the number and the magnitude of its lakes, and in the internal means of commercial intercourse afforded by these, North America is unequalled by any other continent. The chain of great lakes separating Canada and the United States along part of their boundary has a total area of about 94,000 square miles (rather more than that of Great Britain), and the largest of them, Lake Superior, which has a length of 400 and a breadth of 160 miles, and a mean depth of about 900 feet, is the largest body of fresh water in the world, its whole area being estimated at about 32,000 square miles. Of Lake Huron the estimated area is 24,000 square miles, of Lake Michigan 24,000, of Lake St. Clair 750, of Lake Erie 9500, of Lake Ontario 7600. The height of the surface of Lake Superior above sea-level is 635 feet, of Huron and Michigan 578 feet, of Erie 560, and of Ontario 230 feet. The distance between Lakes Erie and Ontario is only 35 miles, and within that distance, as is evident from the figures just given, the river connecting the two has to make a descent of 330 feet. This it does in part by a tremendous cataract, the most celebrated in the world. Just where the cataract occurs the river, called the Niagara, is divided by Goat Island into two portions, the larger of which, on the Canadian side, has a breadth of about 600 yards and precipitates itself down a height of 158 feet, while the smaller has a direct fall of 167 feet. The deepest of the lakes is Huron, in one part of



Horse-shoe Fall (Niagara), from Goat Island.

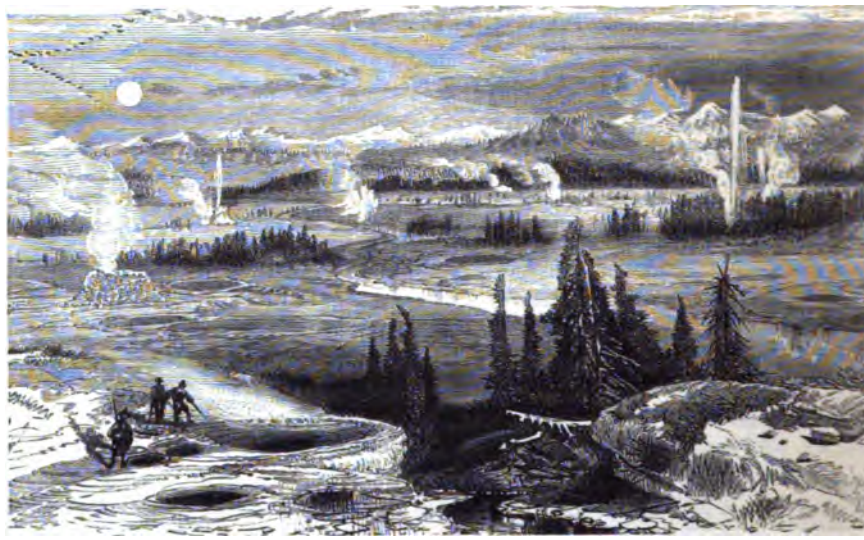
which leads have been sunk, it is said, to a depth of 1800 feet without finding a bottom. All the lakes are simple depressions in the course of the St. Lawrence, the watershed surrounding them being only a few miles from their shores, thus leaving only a limited zone of drainage. Almost the whole of the level portion of the Dominion of Canada is dotted over with larger and smaller lakes, presenting in the irregularity of their distribution, size, and outline a marked correspondence to the European lakes in north-western Russia and Scandinavia, and resembling these also in certain other respects which have led some geologists to conclude that both groups owe their origin to the same cause, the grinding power of ice in a former geological epoch. Some of these Canadian lakes, such as Lake Winnipeg, Great Slave Lake, and Great Bear Lake, exceed in magnitude the smaller of the lakes of the group at the head of the St. Lawrence. Of the salt lakes already referred to as occupying the Great Basin in the Rocky Mountains the largest is the Great Salt Lake, which is 90 miles in length by from 20 to 35 in breadth. It lies 4200 feet above the level of the sea, and its greatest depth is only 60 feet.

GEOLOGY AND MINERALS.—Perhaps the most interesting fact in the geology of this continent is the existence here over a wide area of the oldest known stratified rocks. The whole of Canada Proper as far as Hudson's Bay, New Brunswick, Newfoundland, and the Labrador Peninsula are underlaid by these strata, to which the name of Laurentian has been given from the river St. Lawrence. From these has been obtained the oldest known fossil (if fossil it be), the *Eozoon Canadense*. The geology of the Rocky Mountains has recently been examined by a party of skilled geologists under the direction of F. V. Hayden, and from their labours it appears that the several ranges of that system all contain a nucleus of granite or gneiss, flanked by metamorphic and fossiliferous rocks ascending to the pliocene formations of the tertiary period, from which it is inferred that it was late in that period before the mountains of this system attained their full altitude. Igneous and volcanic rocks abound in the Mountains of Montana and Wyoming, and amidst these mountains lies the famous Yellowstone Region, remarkable for its grand mountain scenery, beautiful lakes, and mighty cataracts, and still more for its cañons or chasmy river beds, its hot springs and tremendous geysers. In several of the higher peaks in the northern part of the Appalachian system there is a nucleus of granitic or metamorphic rocks, but the prevailing rocks in that system are stratified formations of the Silurian, Devonian, and carboniferous ages, the Silurian strata attaining a great thickness. Crystalline and Silurian rocks form the substratum of Mexico, for the most part covered with igneous and volcanic rocks and secondary limestone.

The principal minerals are gold, silver, copper, iron, lead, and coal. Formerly the first three were found in greatest abundance in Mexico; but now gold is found most abundantly in California, silver in Nevada, and copper in the state of Michigan on the shores of Lake Superior. The coal-fields of North America are of prodigious extent. The Appalachian coal-field, stretching from the state of Pennsylvania to that of Alabama, a distance of 850 miles, with a maximum breadth of 280, contains an area of workable coal-beds estimated at

60,000 square miles; and in the North-west Territories of the Dominion of Canada there is a vast area, believed to be not much less than half a million square miles, underlaid by true coal, this area commencing about 150 miles from the Rocky Mountains, in about lat. 53° N., and appearing to stretch continuously, with an average breadth of about 300 miles, to the Arctic Ocean. Iron is worked in many parts of the States, principally, however, in Pennsylvania. Salt is likewise widely diffused. Large quantities of petroleum are procured in Pennsylvania and some of the neighbouring states, and also in Canada.

CLIMATE.—In considering the climate of North America as a whole it will be of service to compare this continent with Europe and Asia together, the



The Great Geyser Basin of the Upper Yellowstone.

continental mass to which the name of Eurasia has been given by some writers; and when we do so we shall find both points of correspondence and points of difference between the two land-masses. Both lie between two seas and have their western shores exposed to the heat-bearing winds and marine currents from the south-west or equatorial regions, while both have their north-eastern shores washed by cold currents from the Arctic Ocean. In both accordingly the western parts are the warmer and the isothermal lines sink as we proceed eastwards, and in both too the greatest extremes of heat and cold are to be found in the regions lying to the east. For this reason the American towns on or near the Atlantic coast have a temperature corresponding rather with that of Asiatic towns on or near the Pacific coast than with those of the opposite coasts of Europe, which latter have in fact a winter temperature about ten degrees higher than places of the same latitude on the eastern coast of America. Even on the Pacific coast of America, though the climate is milder than in the same latitude on the Atlantic coast, the temperature is lower than in corresponding

latitudes in western Europe, a circumstance which is no doubt to be explained by the difference in the amount and distribution of the waters on the west of the respective continents. To illustrate the amount of this difference it may be mentioned that the mean summer temperature of San Francisco in about lat. 38° N. is the same as that of Edinburgh in about lat. 56° N. As regards the range of temperature in the east and west of the continent it may be mentioned that in the Atlantic States it amounts to 110° or more, while at San Diego in the south of California it is only 50° Fahr. The difference between the mean summer and the mean winter temperature of San Francisco is only 8°. While North America and Eurasia thus resemble one another in the superior mildness of their western as compared with their eastern shores, a difference between them in respect of temperature arises from the difference in the disposition of their great mountain chains. In America the Rocky Mountains running north and south near the west coast arrest to some extent the influence of the south-westerly winds, in consequence of which the mild temperatures of the west extend a much shorter distance inland in America than they do in Europe. The absence of great mountain ranges lying east and west in the same continent contributes to bring about the same result. The existence of such ranges in Asia has some effect in preventing the descent of cold air in winter from the northern to the southern parts of the continent, while in America there is no such obstruction, and keen north-west winds prevail in that season throughout a large part of the continent (the general direction being from the region of highest pressure in the north-west of the dominion of Canada to that of lowest pressure in the Mexican Gulf). These naturally add greatly to the rigour of the climate, and carry the influence of frost much further south than it reaches in Asia, ice being occasionally seen as low down as the 30th degree of latitude. The transitions from cold to hot, or from winter to spring, are very sudden, especially in Canada, where there is little or no spring.

In respect of rainfall the chief difference between North America and Eurasia is that outside of the tropics there is no marked alternation of dry and rainy seasons, as there is in Eastern Asia as far north as the 60th parallel of latitude. The whole of North America above the Gulf of Mexico is liable to receive rain at any season of the year, but in this continent as in Asia there is an extensive region where the rainfall is remarkably deficient and the surface accordingly extremely sterile. In America this region, called the Great Desert, embracing the arid plateau already mentioned in the Rocky Mountains besides other tracts in the north, east, and south, has a total area of about 1,400,000 square miles, more than half of which has a good soil and requires nothing but water to make it richly productive.

On the table-lands of Mexico the climate is temperate and delightful, its only drawback being a liability to long droughts. In Central America the lowlands are hot and unhealthy. Both in Mexico and Central America the eastern slopes of the mountains and table-lands are more steadily supplied with rain than the western. The former receive rain at all times of the year, since they lie in the direct course of the trade-winds, the vapours of which are condensed and pre-

cipitated in consequence of the obstruction presented by the elevations of the interior. The western slopes, on the other hand, have the alternation of wet and dry seasons characteristic of tropical countries, the former season lasting from April to October, the latter from October to April.

VEGETATION.—The Arctic flora of America has much the same character as that of Europe and Asia. According to Prof. Grisebach's subdivision of the earth into zones of vegetation, this Arctic region is followed by a northern forest region embracing a vast area from Behring's Strait to the Atlantic, and extending southwards in its eastern half to Florida and the mouths of the Mississippi, while in the west it descends only to 46° N. (at the mouth of the Columbia), from which it ascends to nearly 55° N. in the North-West Territories of the Canadian Dominion. In its original condition this region was entirely covered by forests, though now these forests have to a large extent been cleared away and over a wide area have given place to cultivation. In certain parts of the region, however (the south-east and the north-west), the forests are still of immense extent, sometimes covering a surface of 60,000 square miles. This region extending from the Arctic circle to the very verge of the torrid zone, it scarcely requires to be mentioned that the flora changes greatly from north to south, but the transition is so gradual that no line of demarcation can be established anywhere within it of so distinct a character as that which marks off the whole region from those to the south and west. Throughout this region, but more especially towards the north, the trees belong to a large extent to the same genera as those of Eurasia, but to different species. So far no two trees indigenous to the opposite coasts of the Atlantic in the northern hemisphere have yet been shown to belong to the same species, though in a few cases (such as the *Pinus Menziesii*) this has been established for trees growing on opposite shores of the Pacific.

The northern forest region has been subdivided by Grisebach into five zones. The first of these is that of the white spruce (*Abies alba*), which reaches furthest north of all the conifers of the region, in some places attaining 68° N. lat., and which in certain parts covers enormous areas unoccupied by any other tree. The southern limit of this zone is about lat. 54° N. The second zone is that of the Oregon pines, a mild region with abundant rains extending along the west coast from Sitka or even further north to Oregon. In this zone also conifers predominate, these being mostly of gigantic size (the Douglas, Menzies, and hemlock spruce, the *Thuja gigantea* or Oregon cedar, &c.), but there are likewise maples, poplars, alders, &c. The third zone is that of foliage trees, a zone which spreads over the whole of the area fit for settlement in the east down to the south of Virginia and Kentucky (about lat. 36° N.). The woods of oak, elm, ash, and maple in this zone are celebrated for the beauty of their autumn tints, presenting numerous gradations of red, orange, and yellow. In the latitude of Pennsylvania the woods are principally formed of four species of oak, the chestnut, and a species of walnut (*Juglans nigra*). As regards herbaceous plants the flora of this zone contrasts strikingly with the corresponding districts of Europe in the absence of heaths, in the small number of species it exhibits belonging to the orders Umbelliferæ and Cruciferæ, and to the section of Com-

positæ called Cynarocephalæ (the artichoke and thistle section), and in the great abundance of its asters and solidagos belonging to the Corymbiferæ, another section of the Compositæ. The fourth zone is confined to the island of Newfoundland, where low-growing pines (from 18 to 30 feet high), larches, and birches alternate with stretches of open country. The fifth is the subtropical zone, which consists of the eastern states lying to the south of Virginia and Kentucky, and which contains even some examples of a strictly tropical flora, such as several species of yucca and the *Tillandsia usneoides*. The most important tree of this zone is the long-leaved pine (*Pinus australis*). In South Carolina and further south the large-leaved magnolia flourishes, reminding one of Eastern Asia and Japan, and mangroves occupy some parts of the eastern coasts of Louisiana.

The next distinctive region of American vegetation is that of the prairies, bounded on the north and east by the northern forest region, while on the west it extends to the Rocky Mountains (which are partly included within it) and on the south to about the tropic of Cancer. The characteristic feature of this region is the great deficiency of timber, for the growth of which the supply of moisture is not sufficiently constant. Instead of trees the ground is for the most part covered with rich grass and shrubs, affording, unlike the steppes of Russia, excellent pasture even in the dry season. The best-watered parts of this region are admirably adapted for cultivation. In the drier parts of the region no family of plants has a more conspicuous effect in the landscape than the cactuses, though it is only within the tropics that this, originally purely American family, exhibits the greatest variety of forms.

To the west of the prairie region lies the Californian coast region, extending from the mouth of the Columbia to the upper end of the Californian peninsula, and distinguished by its mild rainy winters and rainless summers, the climate altogether resembling that of the countries bordering on the Mediterranean. Vegetation is consequently, as in Italy, most vigorous in spring, and entirely checked in summer. In this region the characteristic trees are conifers of gigantic size, among which is the *Sequoia gigantea*, the largest tree in the world, its average height being about 300 feet, while some specimens attain an altitude of 450 feet. Almost equally lofty are the redwood (*Sequoia sempervirens*), Lambert's Californian pine, and the California noble fir.

The last of Grisebach's regions of vegetation on the mainland of North America is the Mexican region, from the tropic of Cancer to the Isthmus of Panama, a region accordingly entirely within the limits of the torrid zone, although on account of the elevation of the table-lands much of the vegetation is of a subtropical character. In accordance with the distribution of the rainfall in this region, which, as already mentioned, is supplied with rain on the eastern slopes all the year round, while on the western slopes a rainy alternates with a dry season, it is only on the former side that tropical vegetation is developed in its fulness. In this region the Bromeliaceæ are represented by extraordinary numbers of pine-apples and agaves. Cactuses also are remarkably abundant, and are found in the drier tracts even to the height of 11,000 feet. Palms too are numerous, especially species of Chamædorea, Cocos, and Elæis.

Of cultivated plants the following among others are indigenous in North America—maize, millet, cotton, cocoa, pimento, vanilla, copaiba, cinchona, jalap, sassafras, nux vomica, tobacco, the cochineal plant, the potato, and certain species of vine. Sugar, coffee, and all European objects of cultivation have likewise been introduced with success.

ZOOLOGY.—Like the Arctic flora the Arctic fauna of North America corresponds pretty closely with that of the Old World, and in general it is observable that the further south we go the fewer become the species which are either identical with those of the Old World or may be regarded as representatives of the latter. Comparatively few genera are peculiar to North America. As a whole both the mammals and the birds of the temperate parts of North America (in which must be included the higher parts of Mexico and Central America to 16° N.) correspond more with those of Europe than with those of South America. Of the Carnivora of North America the principal are the various kinds of bears, dogs, wolves, foxes, the panther, lynx, and wild-cat, with the hedgehog, shrew, shrew-mole, raccoon, badger, wolverene, weasel, skunk, otter, seal, and walrus. The puma or American lion roams as far north as the 40th parallel of N. lat. if not even higher, and the jaguar, accompanied by the ocelot, advances to the north of Mexico. Ruminants, it is worthy of remark, are represented in North America by only twenty-four species against nearly 130 in the Old World. The most characteristic of the North American representatives of this section of animals are the moose or elk, the wapiti, an animal of the deer kind almost as large as the elk, and called in America by that name, the bison (erroneously called in America the buffalo), and the musk-ox. By far the most numerous of these animals is the bison. Once it appears to have wandered in a single vast herd, numbering many millions, from about 60° N. lat. to the southern parts of Texas; but this herd is now said to be divided into three, one band ranging over the region about the Saskatchewan, the second over the middle and western territories about the Platte and Republican rivers, and the third throughout Texas and the neighbouring states. The mountain sheep (*Ovis montana*), which is as large as the argali of Central Asia, is also to be met with occasionally in the Rocky Mountains. The horse and common ox have been imported and become wild. Marsupials, which are entirely absent in the temperate regions of the Old World, are represented by three species of Didelphys (opossum) in Mexico and the southern parts of the United States. Rodents are remarkably numerous, and among these the squirrels are represented by no less than twenty-seven species. Reptiles are abundant, especially in the States, and some of them dangerous, the most noted of this class being the rattlesnake. The alligator or cayman is found in some of the southern rivers. Birds exist in great variety, including some genera peculiar to the continent, such as the humming-bird, toucan, and wild turkey. Of insect pests none is more dreaded by the farmer than the locust, one species of which (the "red-legged grasshopper," as it is called in America) commits its ravages in the north of New England and the eastern parts of the Dominion of Canada, while another species infests the regions west of the Mississippi and the western parts of the Canadian Dominion.

The mosquito, though not destructive like the locust, is a still more general pest in all parts where there is a hot summer. The fauna of the southern lowlands of North America and of the highlands south of about 16° N. is almost identical with that of the adjoining part of the southern half of the New World.

PEOPLE.—See general article and the articles on the several countries.

POLITICAL DIVISIONS.—The following table gives the area and population according to the most recent information of the political divisions and island groups of North America:—

	Area in sq. miles.	Population.
Dominion of Canada,[1]	3,205,000[1]	3,670,000
Newfoundland,	40,200	146,536
St. Pierre and Miquelon (French),	90	5,338
Bermudas,	19	13,812
United States,	3,580,000	50,182,525
Mexico,	741,825	9,389,461
Central American Republics,	172,170	2,509,890
British Honduras,	7,562	24,710
Panama (politically part of United States of Colombia),	31,593	224,600
West Indies,	94,400	4,412,700
The great lakes between Canada and United States,[2]	92,000[2]	——
Total (in round numbers),	7,900,000	70,600,000

[1] Exclusive of the Arctic archipelago.
[2] Exclusive of Georgian Bay off Lake Huron, and Burlington Bay and Bay of Quinte off Lake Ontario, which are reckoned to Canada.

DOMINION OF CANADA.

The Dominion of Canada is a confederated group of British colonies occupying the territory which lies to the north of the United States and extends northwards to the Arctic Ocean and east and west to the Atlantic and Pacific. None of these seas, however, is touched by the Dominion frontier at all points, for on the north-west the boundary is formed by the United States territory of Alaska, and on the east the coast of Labrador belongs politically to Newfoundland. In the table of the provinces of the Dominion given on next page the latter district, the area of which is indefinite, is included in the North-west Territories.

PHYSICAL FEATURES, CLIMATE, AND PRODUCTIONS.—See the general account of North America and the notices of the different provinces of the Dominion.

COMMERCE AND COMMUNICATIONS.—The foreign trade of Canada is carried on chiefly with Great Britain and the United States, these two countries together receiving more than nine-tenths of the Canadian exports, and sending five-sevenths of the Canadian imports. Of the exports more than one-half in value is destined for Great Britain, while the share of the United States is only

Provinces.	Area in sq. miles.	Population.		Percentage of increase since 1871.	Pop. (1881) per sq. m.	Propor. (1871) of females to males.
		1871.	1881.[5]			
Ontario, ...	107,780[1]	1,620,851	1,913,460	18·05	9	95·6 per cent.
Quebec, ...	193,355	1,191,516	1,358,469	14·01	7	99·9 "
New Brunswick, ...	27,322	285,594	321,129	12·44	12	95·0 "
Nova Scotia, ...	21,731	387,800	440,585	13·61	20	100·1 "
Prince Edward Island,	2,133	94,021	108,928	15·85	51	99·5 "
Manitoba, ...	13,969	12,145	49,509	289·00	—	93·5 "
District of Keewatin,	395,000	33,000[3]	100,000[6]	65·28	—	?
North-west Territories,	2,088,000[2]					
British Columbia, ...	356,000	46,000[4]	60,000[6]	78·64	—	?
Total (in round numbers)	3,205,000	3,670,000	4,352,000	18·05	1·36	?

[1] Since 1871 the boundary of Ontario has been extended at the expense of the North-west Territories, and its area thus brought up to fully 200,000 square miles.

[2] By planimetrical calculation; including the islands in Hudson's Bay but not those of the Arctic archipelago.

[3] In this estimate allowance is made for the population belonging to the area transferred to British Columbia subsequently to 1871.

[4] Including the population referred to in the previous note.

[5] Official unrevised statement. [6] Including Indians (estimated).

about three-eighths; in the imports the share of each of these countries is about the same, though that of the United States is rather the larger of the two. Among the exports to Great Britain the most important are agricultural produce and lumber and other produce of the forests, each of these making up more than a third of the total value; and the next in importance are animals and animal produce, manufactured articles (including ships, the principal), fish, and minerals. The principal exports to the United States are the same as those to Great Britain, only minerals and fish are in the case of the former country relatively more important, and timber and agricultural products relatively less important than in the case of the latter. The principal imports from Great Britain are iron and other metals, woollens, cottons, apparel and haberdashery, besides tea (principally black); those from the United States sugar, cottons, hardware, tea (principally green), and flesh meats. A considerable quantity of tea is imported direct from Japan and China, and of sugar from the West Indies. The mercantile marine of the Dominion has a larger aggregate tonnage than that of any other country in the world except Great Britain, Norway, France, and the United States.

The inland trade of the Dominion has been greatly promoted by the construction of railways and canals as well as roads. At the end of 1878 the total length of the former nearly reached 6000 miles. The most important of the lines yet constructed is the Grand Trunk Railway, which crosses the St. Lawrence at Montreal by the stupendous Victoria Tubular Bridge (with its abutments nearly 2 miles long), and thus connects Canada with the railways of the United States. The greatest railway undertaking which has yet been proposed in Canada is the construction of a railway from Ontario to the Pacific coast, to be called the Canadian Pacific Railway. It was made one of the chief conditions of the entry of British Columbia into the Dominion, that this railway should be constructed within ten years, that is, in 1881 or earlier, and,

though there is no possibility of this condition being fulfilled, the railway is now in progress and its construction is being carried on with energy. The line starts at Fort William on the north-western shore of Lake Superior and is to terminate at Burrard Inlet in the south of British Columbia. It will cross the Rocky Mountains at the Yellow Head Pass at the height of 3650 feet above sea-level, which is upwards of 3000 feet less in height than the highest point of the Central Pacific Railway. The total length of the direct line will be 1956 miles, and the total length including branches (one of which, from Selkirk to Emerson, known as the Pembina branch, has already been constructed), 2200 miles. In the summer of 1881 a route was surveyed for a projected railway from Lake Winnipeg to the mouth of the Churchill, the best port on Hudson's Bay.

Some of the canals also are stupendous achievements. The most important, from a commercial point of view, are the St. Lawrence Canals and the Welland Canal. The former series of canals, with an aggregate length of about seventy miles, avoids the rapids on the St. Lawrence between Montreal and Kingston on Lake Ontario, and thus affords to vessels the means of ascending to that lake (in descending vessels of 700 tons can shoot the rapids with safety), and the latter, which has a length of 27 miles, avoids the Niagara Falls and rapids, and enables vessels to ascend from Lake Ontario to Lake Erie. Both the Welland Canal and the St. Lawrence series are now being enlarged and deepened so as to accommodate the increased traffic expected as a result of the settlement of the north-western provinces, and the construction of the Canadian Pacific Railway. It may here be mentioned that the only other canal necessary to complete the navigation of the St. Lawrence to Lake Superior is the small one on the United States side (in Michigan), avoiding the Sault St. Mary, a tumultuous rapid by which Lake Superior pours its waters into Lake Huron. Next after those mentioned, the most important of the Canadian canals is the Rideau Canal, the longest of all. It connects Lake Ontario at Kingston with the Ottawa near the city of that name.

The natural water-ways of the Dominion of Canada are also of the most magnificent kind, and very often they are entitled to this description not only on account of the facilities they afford for navigation but also by reason of the beauty of their scenery. From the mouth of the St. Lawrence one can ascend with the aid of a few miles of canals to the head of Lake Superior, a distance of about 2250 miles, and then with little interruption the journey by water may be continued by the Rainy Lake and River, the River Winnipeg, and the lake of the same name to the head-waters of the Saskatchewan, about 4500 miles from the mouth of the St. Lawrence River. In direct connection with this system of navigation are the Ottawa, an affluent of the St. Lawrence, and the Assiniboine and Red River, whose united waters fall into Lake Winnipeg, all of which rivers attain a length of at least 500 miles; and unconnected with this system the Athabasca, Peace, and Mackenzie Rivers, which. together afford more than 2000 miles of navigation. And when it is remembered that the greater part of the natural system of inland navigation lies amid plains of the richest character, where year after year wheat can be raised without manure and without any

sensible diminution in its yield, the importance which this means of communication is destined to acquire in the development of the Canadian Dominion and even in the history of civilization will be manifest. The navigation of the Nelson, the outlet of Lake Winnipeg to Hudson's Bay, is completely interrupted by a rapid about a hundred miles above its mouth; and further obstacles to the shipment by this route of the produce of the west to Europe, are presented by the difficulty of the navigation of Hudson's Strait, and the certainty of the ports on the bay being closed by ice against navigation during the greater part of every year.

The Third Rapid of the Moisie River, a Tributary of the St. Lawrence.

A uniform rate of postage, equal to somewhat less than 1½*d.* for the minimum weight, has been established over the whole Dominion. The number of private letters and post-cards annually delivered has in recent years amounted to about 13 per head of the population. The Dominion is a member of the international postal union.

MONEY, WEIGHTS, AND MEASURES.—A decimal system of coinage was introduced into the Dominion by an act passed in 1871. According to this system the unit of account is a dollar of 100 cents, the value of which is declared to be on the basis of 486 cents and two-thirds of a cent to the pound of British sterling money. The average rate of exchange makes the dollar equal to about 4*s.* A new and uniform system of weights and measures was introduced by an act passed two years later, making the Canadian standards the same as the British imperial standards. The British hundredweight of 112 lbs. and ton of 2240 lbs. are, however, superseded by the United States equivalents at 100 lbs. and 2000 lbs. respectively.

PEOPLE, &c.—At the census of 1871 different nationalities were found to be represented in the four old provinces of Ontario, Quebec, New Brunswick, and Nova Scotia in the following proportions:—French (chiefly in Quebec), 31 per cent; Irish, 24 per cent; English, 20 per cent; Scotch, 15¾ per cent; Germans, 5¾ per cent; Dutch, Indians, and Negroes each above ½ per cent; besides Welsh, Swiss, Scandinavians, Italians, and others. The total number of Indians in the Dominion was estimated at the same census at about 82,000, and more recent estimates bring the number up to nearly 100,000, or about 2½ per cent of

the whole population. In the old provinces of the Dominion separate allotments of land have been granted to the Indian population, and there the Indians have adopted a settled mode of life, and have made considerable advances in civilization. A separate department of the Canadian government exercises a general supervision over their affairs. Schools have been established among them, and they are said to learn to read and write quickly and to show a talent for music and drawing. The majority of the Indians, however, live beyond the influences of this kind of civilization, and wander over the plains of the Northwest supporting themselves by fishing and hunting. They also make a number of articles of hollow-ware out of wood, such as troughs, butter-dishes, bowls, and barn-shovels. Their canoes are ingeniously constructed of birch bark lined with strips of cedar, and smeared over with a preparation of pine gum and pitch. A canoe so made is light enough to be carried for miles by a man or woman over the roughest *portages*, or places intervening between one navigable point and another. Frequently, however, the canoe is in a single piece, made by hollowing out the stem of a tree. Their dwellings or *wigwams* are of the simplest construction, consisting merely of a frame of poles covered with birch bark, with a hole in the roof to serve for a chimney and an opening covered with a blanket to serve for a door. The chief vice of the Indians is an excessive fondness for ardent spirits, called by themselves "fire-water," but this passion is said to be kept somewhat in check through the influence of the missionaries. There is no state church in the Dominion. The prevailing religion in Quebec is that of the Roman Catholic Church, but in the other provinces various Protestant sects predominate. Ample provision is in general made for education, which is under the control of the provincial governments. For the most part the public schools are free.

GOVERNMENT.—By the Act of Confederation of 1867 the constitution of the Dominion was required to be similar in principle to that of the United Kingdom. The executive government is vested in the sovereign of Great Britain and Ireland, and is carried on in her name by a governor-general appointed by the Crown and a privy-council. The legislative authority rests with a Parliament consisting of two houses, the Senate and the House of Commons. The Senate consists of seventy-seven members, who are nominated by the governor-general. Each senator must be a born or naturalized subject, above thirty years of age, and possessed of real or personal property to the value of at least 4000 dollars in the province for which he is appointed. There are twenty-four senators from the province of Ontario, twenty-four from Quebec, ten from Nova Scotia, ten from New Brunswick, two from Manitoba, three from British Columbia, and four from Prince Edward Island. The House of Commons is elected by the people for five years, there being one member for every 17,000 of the population. The capital of the Dominion is Ottawa. Each of the provinces has a lieutenant-governor, appointed by the governor-general in council, and separate executive councils and legislative bodies. The legislative bodies are in each case composed of two chambers, one called the legislative council, the members of which are appointed for life, the other, the legislative assembly, the members

of which are elected by the people for a term of four years. The North-west Territories and the District of Keewatin are not fully organized provinces. The former are administered by a separate lieutenant-governor assisted by a council, and the latter is attached in the meantime for administrative purposes to the province of Manitoba.

The revenue of the Dominion is derived mainly from customs and excise duties, the former making up more than a half, the latter nearly a fourth of the whole amount. The heads of revenue next in importance are public works, including railways and the post-office. The customs duties comprise import duties on all manner of articles, both manufactured and unmanufactured, sometimes rising as high as 30 per cent *ad valorem* and even higher, and there are even export duties on certain kinds of timber. With regard to the products of fisheries special favour is shown to the United States, even in comparison with the mother country, these products being admitted from that country free of duty. The largest head of expenditure is the interest on the public debt.

For the defence of the Dominion all male British subjects between eighteen and sixty years of age are enrolled in a militia, which is called out to serve in four classes, namely:—1st class, all between eighteen and thirty, unmarried; 2d, all between thirty and forty-five, unmarried; 3d, all between eighteen and forty-five, married; 4th, all between forty-five and sixty. Only about one-fifteenth part of the whole force is on active service, the remainder forming a reserve. The active militia consists partly of volunteers, partly of men balloted to serve in it. The imperial government now maintains only a garrison of 2000 men in the fortress of Halifax, Nova Scotia.

HISTORICAL SKETCH.—The first European settlement on what is now the Dominion of Canada was made by the French in 1604 on Nova Scotia, but these early settlers were soon after driven out by the English, and the peninsula was alternately in the hands of these two powers till 1713, when it passed finally to the latter. The French were also the first settlers in Canada Proper (Quebec, 1608), New Brunswick (1639), Cape Breton (1712), and Prince Edward Island (about 1715); but all these settlements were conquered from the French by the British during the Seven Years' War, and were ceded to Britain in the Peace of Paris in 1763. The eastern provinces were at first all united under the government of Nova Scotia, but Prince Edward Island received a separate government in 1768, and New Brunswick in 1784. Canada proper formed a single province till 1791, when it was divided into the provinces of Upper and Lower Canada. In 1840 the two provinces were reunited and distinguished by the names of Canada West and Canada East, and they remained united till the formation of the present confederate Dominion in 1867, when they received their present names of Ontario and Quebec. On its original formation the Dominion comprised only the provinces of Nova Scotia and New Brunswick besides these two; but in 1870 the North-west Territories (including the present province of Manitoba and the district of Keewatin) were transferred from the government of the Hudson's Bay Company to the Dominion, which was joined in 1871 by the colony of British Columbia (founded in 1858), and in 1873 by Prince

Edward Island, so that Newfoundland is the only British colony in this part of America which still remains isolated. The province of Manitoba was organized immediately after the transference of the North-west Territories to the Dominion, and the district of Keewatin was formed in 1877.

CANADIAN PROVINCES.

ONTARIO, formerly UPPER CANADA or CANADA WEST, is the province lying to the north of the great lakes. The surface is for the most part level, the principal elevation being a table ridge of considerable height which forms the watershed between the Hudson's Bay and the great lake basins. The extremes of temperature characteristic of this part of North America have already been remarked on in the general article. At Toronto the mean temperature of December, the coldest month, is about 25½° Fahr., of July, the hottest, about 67½°; and at the same place the thermometer ranges on an average throughout the year from about – 7½° to about 89° in the shade. The fluctuations of temperature are often sudden and great. These extremes, however, are mitigated both in summer and winter by the general dryness of the air. The azure of the Canadian sky is remarkable for its purity and transparency, and fogs are almost unknown. The average annual rainfall at Toronto is about 29 inches, the snowfall about 96 inches. The months in which snow principally falls in all the provinces of the Dominion are from November to March. The agricultural productions are similar to those of western Europe, and include both those of the low latitudes of that region (such as maize) and of the high latitudes (such as oats). Fruit also, including pumpkins and squashes, which attain in the open field an enormous size, is grown on every farm, though the principal occupations of the farmers are corn-growing and dairy farming. In some parts of the colony the soil has become partly exhausted by continuous wheat-growing, but in recent years the farmers in such localities have found a new outlet for their energies in the raising of cattle for beef, with which, owing to the improved means of transportation, they are now able to supply the English market.

The greater portion of the province is covered with forests, chiefly of white and red pine (*Pinus Strobus* and *Pinus resinosa*). Immense quantities of these trees are hewn down every year and sawn into timber (in Canada called *lumber*), after which it is made into rafts and floated down the smaller streams and the great rivers to Quebec, whence it is despatched to Europe, chiefly to England. Among other kinds of timber are various species of ash, black and white birch, beech, elm, hickory, sugar, and bird's-eye maple, the butternut-tree, black walnut, &c. Bears, wolves, beavers, foxes, raccoons, otters, martens, minks, and musk-rats are to be met with in the province, but the first three are exceedingly rare, and all the others are rapidly diminishing in numbers. Snakes are numerous, but the venomous kinds are not so plentiful as in the United States. The mineral wealth of the province is great and varied. Iron is found in great

quantity a short distance inland from Lake Ontario; and in the same region copper, lead, plumbago, antimony, arsenic, manganese, gypsum, and even gold, besides marble and building-stone, are obtainable. Large quantities of petroleum are also obtained, the chief oil district having its centre in the towns of Oil Springs and Petrolia, about fifteen miles south of Lake Huron. Salt is obtained in great abundance from wells at different points on the eastern shore of Lake Huron.

The people are mainly descended from emigrants from the United Kingdom, mixed with considerable numbers of Germans and many Americans from the United States. In certain districts free grants of land, never exceeding 200 acres, are given to settlers under conditions designed to ensure the actual settlement of the land so allotted.

Toronto (pop. in 1871, 46,000; estimated pop. in 1880, 70,000), situated on the north-western shore of Lake Ontario, is the capital of the province, the seat of a university and the superior provincial law courts, and an important centre of trade and manufactures. It is regularly built, mostly of a light-coloured brick. Hamilton (27,000), on Burlington Bay, at the western extremity of the same lake, is the next town in size, but is not otherwise remarkable. Ottawa (22,000), beautifully situated on the river of the same name, is celebrated as the seat of government of the Dominion, as it was that of Canada (East and West) from 1858 till the formation of the Dominion. As a seat of trade it is important from the fact of its being the entrepot of the great lumber-trade of the Ottawa and its tributaries. London (16,000), situated in the midst of a fine agricultural region between Lakes Huron and Erie, and Kingston (12,000), at the lower end of Lake Ontario, are the next towns in size. The former is much resorted to in summer by invalids for the sake of its sulphur springs.

QUEBEC, formerly LOWER CANADA or CANADA EAST, lies on both sides of the St. Lawrence below the province of Ontario, from which it is for the most part separated by the Ottawa, though a small district in the angle between the Ottawa and the St. Lawrence is included in Quebec. The watershed of Ontario is continued through the province of Quebec, but this latter province has other elevations, and possesses in general grander physical features than the former. Its principal mountain ranges stretch from south-west to north-east and lie nearly parallel to each other. Much of the river scenery is extremely picturesque, and above all that of the Saguenay, which enters the St. Lawrence about 120 miles below Quebec, is celebrated for its grandeur. The shores of the estuary of the St. Lawrence are very subject to disturbance by earthquakes, sometimes of sufficient force to split walls and throw down chimneys.

The climate of Quebec is similar to that of Ontario, but the extremes are even greater, and the winter lasts longer. The sledge or *sleighing* season, which generally continues here for five months together, lasts scarcely two in the adjoining province. The rainfall is less than in Ontario, amounting to about 27 inches annually in Montreal and 19 in Quebec; but the snowfall, on an average 115 inches yearly, is greater than in any other province of the Dominion. Nevertheless all the products of Ontario thrive also in Quebec. Vegetation, when it

does commence, is necessarily rapid, the foliage of the forest being often unfolded in great luxuriance in the course of a fortnight. The mineral wealth of Quebec is not so great as that of Ontario, yet iron of superior quality is found almost everywhere, and gold, copper, lead, silver, zinc, platinum, &c., are also found. Manufacturing industries are naturally comparatively unimportant. Shipbuilding, however, is carried on to a very considerable extent, especially at the town of Quebec.

The majority of the inhabitants are of French origin, mostly descendants of settlers from Normandy established in the province before its transference to the British. They still speak the French language, retain to a large extent the old French law, and adhere to the Roman Catholic religion. Their dress too is antique, the characteristic garment of the men still consisting of the *capote*, a large coat reaching to the knee, bound round the waist by a sash of the gayest colours. All the population are in comfortable circumstances, being mostly proprietors of land and living on the produce of their own properties. During the winter the greater part of them cease from serious labour and devote the time to visiting and merry-making.

Quebec, from the Citadel.

Quebec (pop. in 1871, 60,000), the capital of the province, was originally confined to the summit of a commanding promontory standing at the point where the St. Charles joins the St. Lawrence, and presenting to the latter river a nearly precipitous face 333 feet high, but now occupies partly this summit and partly the low ground at the base. From its situation the upper town is naturally a place of great strength, and being surrounded by walls and otherwise fortified it is perhaps the strongest fortress in America. The chief communications between the upper and lower town (the seat of commerce) are a steep and narrow winding street and a flight of stairs. In many places the rock has been cut away to make room for the houses of the lower town, and on the St. Charles side the water at flood-tide once washed the rock; but from time to time wharf after wharf has been built out towards low-water mark, and foundations made sufficiently solid to build whole streets where vessels of considerable size once rode at anchor. The streets are generally irregular and

narrow. The foreign trade of Quebec is greater than that of any other city in the Dominion. Montreal (107,000), on the St. Lawrence, 180 miles above Quebec, is the most populous city in the Dominion, and ranks second as regards the amount of foreign commerce and shipping carried on at the port. The harbour, built, like most of the principal edifices in the town, of limestone quarried at no great distance, presents several miles of continuous masonry. A broad terrace faced with gray limestone divides the city from the river throughout its whole extent. The Victoria Bridge, as already mentioned, here spans the St. Lawrence.

Montreal, Place d'Armes.

NEW BRUNSWICK is the province lying to the south of the eastern districts of Quebec, between Chaleur Bay in the north and Fundy Bay in the south. The surface presents in general a series of bold undulations, sometimes rising into mountains or continuous ridges of high land. These elevations seldom reach any great height, but their steep slopes, sharp outline, and deep ravines give them an alpine and picturesque character, which finely and strikingly contrasts with the rich valleys and sheltered plains that make up most of the rest of the province. The only exception to this character is formed by the eastern coasts, which are low and sandy, and covered with only a poor and scanty vegetation. The extremes of temperature are almost as great as in the province of Quebec. South-west winds often cause dense fogs to hang over Fundy Bay and the land from 15 to 20 miles inland. A large portion of the province is covered with dense forests, containing the same variety of trees as those of the adjoining provinces, and the felling and exporting of timber forms the principal occupation of the inhabitants. Agriculture has made comparatively slow progress and does not meet the wants of the population. The fisheries, on the other hand, are an important source of wealth. The rivers, lakes, and sea-coast abound with fish in great variety; the salmon fisheries are among the finest in the world, and the oyster-beds of Buctouche, Caraquette, and Cocaigne are almost equally famous. Coal is plentiful; iron ore, yielding iron of excellent quality, is found in vast sedimentary deposits many feet in thickness; the deposits of antimony are the most valuable in America; and manganese, copper, lead, silver, and gold are also found. Shipbuilding is an important industry, especially at St. John and on the Miramichi;

and a considerable number of people find employment in extracting sugar from the sugar-maple.

A large majority of the inhabitants are emigrants from the United Kingdom and their descendants. Along with these, however, there is a considerable proportion of French origin (Acadians), chiefly in the districts on the north coast and in the valley of the Madawaska. There are also a few Mic-macs and other Indians.

The capital of the province is Fredericton (6000), on the St. John River, 84 miles above its mouth; but by far the largest and most important town is St. John (in 1871, 29,000), picturesquely situated on a rocky peninsula at the mouth of the same river. It is regularly laid out and well built, the building materials chiefly brick and stone. The harbour is safe and capacious, and never obstructed by ice, and this advantage, together with the situation of the town at the mouth of a large river and on the edge of a district rich in timber, minerals, and other products, and traversed in all directions by railways centring in St. John, makes this town a place of no little commercial importance.

NOVA SCOTIA, originally, in the time of the French, ACADIE, is the province lying immediately to the east of New Brunswick, and consisting of the peninsula of Nova Scotia proper, connected with New Brunswick by an isthmus only eleven miles in width, and the adjoining island of Cape Breton, which was finally united under the same government with the peninsula in 1819. The area of the island of Cape Breton is about 3120 square miles, or more than ten times that of the island of Anglesey; that of the peninsula, therefore, according to the table previously given, about 18,600 square miles.

The coast-line of Nova Scotia, a thousand miles in length, is almost everywhere bold and precipitous, though nowhere exceeding 600 feet, and on the east side is much indented. On the Bay of Fundy an almost unbroken line of cliffs extends from the furthest island to Cape Split. On the other side of this ridge lies the valley of Annapolis, the richest and most beautiful valley in the province. Elsewhere the peninsula is traversed by ranges of low hills, the surface of which is generally sterile, though the plains on both sides, but more particularly in the north, are well adapted for agriculture. The Bay of Fundy is remarkable for the impetuosity of its tides and the height to which they rise. At the equinoxes they have been known to rise as high as fifty feet, while at Halifax on the opposite coast the spring-tides rise only from six to eight feet. The coast-line of Cape Breton is even more irregular than that of the peninsular portion of the province of Nova Scotia. A deep inlet, expanding in the interior into a lake, nearly divides the island, and the bisection is completed by a ship canal. The two portions of land thus separated are very different in character, the western being comparatively high and steep, while the eastern is generally low. The extremes of temperature are considerably less in Nova Scotia (and still less in Cape Breton) than on the neighbouring parts of the continent, and the annual mean temperature of Halifax is three degrees higher than that of St. John, New Brunswick. Dense fogs are prevalent at certain seasons along the Atlantic coast. The forest products of Nova Scotia are of less relative importance than in the other provinces hitherto treated of, and less in the peninsular part of the province than in the

island of Cape Breton; but, on the other hand, the mineral wealth of both divisions of the province is remarkably abundant. In the peninsula the iron ore is said to be inexhaustible, and yields iron of the best quality; gold and manganese are also plentiful, and besides these are found copper, lead, silver, slate, and coal. The last-mentioned mineral is found in the isthmus connecting Nova Scotia with New Brunswick, and is of good quality, and forms deposits of not less than 120 square miles in Cape Breton, where there are short railways connecting the coal-fields with the port of Sydney. The fisheries are another leading source of wealth, and are indeed the finest in the world except those of Newfoundland. The people are mainly of British origin, the French population (Acadians, as they are still called) numbering only about 6000, or less than one in sixty of the whole population. In the middle of last century the Acadians numbered 17,000 or 18,000, and were a peaceable industrious people, living on their own fields in the enjoyment of simple plenty. Refusing, however, to bear arms against their fellow-countrymen in the war which about that time broke out between France and England, the English resolved to expel them from the province and distribute them over different English colonies in North America. The execution of this resolve afforded the subject for Longfellow's *Evangeline*. It was carried out with the most ruthless barbarity. The property of the Acadians, with the exception of their money and furniture, was forfeited without compensation; and no provision was made for their reception in the colonies to which they were deported, the people being left to shift for themselves on the coasts on which they were turned adrift.

The capital of Nova Scotia is Halifax (30,000), on the east side of the peninsula. It is strongly fortified, and is the chief naval station of British North America. It has a large royal dock-yard covering fourteen acres, and it is the only part of the Canadian Dominion where a British garrison is still maintained. The harbour is six miles long by about a mile in width, and has excellent anchorage in every part of it. Sydney, the chief town and port of Cape Breton, on the north-east side of the island, has a population of about 3000.

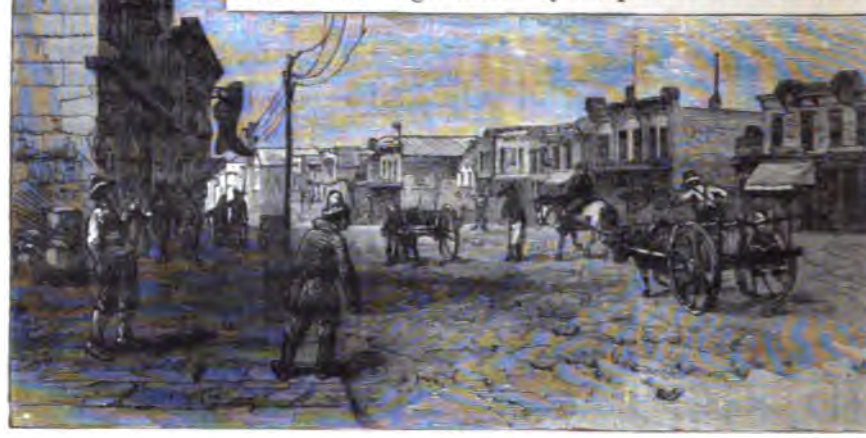
PRINCE EDWARD ISLAND, formerly ST. JOHN'S ISLAND, the smallest province of the Dominion, being little more than seven times the size of Anglesey, occupies the bay between New Brunswick and Nova Scotia. The surface of the island is gently undulating. Formerly it was covered with forests, but these have been considerably reduced to make room for cultivation. The climate is milder than that of New Brunswick, but has greater extremes both of heat and cold than Nova Scotia. On the other hand, it is almost free from the fogs by which that peninsula is often visited. The annual rainfall is about thirty inches, which is less than in some other parts of the Dominion, but the number of rainy days in the year (129) is greater than in any of the other provinces. The average amount of snowfall in the year is about 112 inches, or 20 inches more than in Nova Scotia. The soil is generally a light loam, and a large part of the surface is alluvial and quite free from stones. The province is peculiarly well adapted for sheep-rearing, and its horses are said to be better than those of any other part of the Dominion. No minerals of commercial value have yet been

discovered, but the fisheries are valuable, especially those of cod and mackerel on the north coast. Education is free. Navigation to and from the island generally closes about the middle of December and remains closed till about the end of April, during which period mails and passengers are conveyed in ice-boats between Cape Traverse in Prince Edward Island and Cape Tormentine in New Brunswick. The capital of the province is Charlotte Town (9000), on the Hillsborough River near the southern coast.

MANITOBA is a province formed out of the North-west Territories at the time of their incorporation in the Dominion of Canada. It extends from 49° to 50° 30′ N. lat., and from 96° to 99° w. lon. The name is a contraction of two Cree words, Manito-waban, meaning "the spirit's strait," and was originally applied to the lake still so called on account of a peculiar agitation of the waters of a strait in that lake. The greater part of the province consists of perfectly level prairie land. "The soil of Manitoba," says Prof. Sheldon in his report on a visit to the Dominion of Canada in 1880, "is a purely vegetable loam, black as ink, and full of organic matter, in some places many feet thick, and resting on the alluvial drift of the Red and Assiniboine Rivers." The climate shows greater extremes of temperature than any other of the settled parts of the Dominion. The annual range of the thermometer at Winnipeg, reckoned from the average of lowest temperatures to that of highest temperatures, is from about −36° Fahr. to about 95° Fahr., the former point being considerably lower than in any other province, the latter higher than anywhere else in the Dominion except British Columbia. The mean temperature for four consecutive months (December to March) is below 10°, which is lower than the mean temperature of any month in any other province, and the mean temperature of the whole year is about 32½°, or more than seven degrees lower than that of any other province. Nevertheless, on account of the dryness of the air, the climate is one of the healthiest in the world, and by no means unpleasant. The annual rainfall is very scanty, only 17 inches, and the snowfall (62½ inches) is less than in any other province except British Columbia; and though from December to March the average depth of the snow is about two feet, yet from the steadiness of the cold it is as dry as meal, and consequently does not wet the feet. When it does melt, owing to the generally level character of the surface, the water does not at once flow away, but sinks into the ground, and thus helps to supply the moisture necessary for vegetation; and such is the strength of the summer sun that all kinds of products belonging to a warm temperate zone are rapidly brought to maturity, even melons grown in the open air ripening in August and September. Wheat, oats, barley, Indian corn, hops, flax, hemp, and all kinds of garden vegetables ripen early. "It is," according to Prof. Sheldon's report, "no uncommon thing for wheat to be twice in the bag within ninety days—*i.e.* sown, harvested, and thrashed within that period." For wheat growing the province presents indeed peculiar advantages. When compared with the best wheat-growing districts of the United States, the soil of Manitoba (as well as that of the territory already settled further to the west and north-west) is found to produce on an average both a greater number of bushels to the acre and a

greater weight to the bushel. The grassy savannahs of the Red River afford unlimited pasture ranges, and rear good cattle and horses, and sheep of peculiar excellence, yielding good mutton and heavy fleeces of fine texture and great length of wool. Every settler in the province receives a homestead or grant of 160 acres of land. But in spite of the many advantages offered by Manitoba and the Canadian North-west to the emigrant farmer, these regions are not without their disadvantages, the chief of which are liability to the ravages of locusts, exposure to the torments of mosquito bites, and the risk of damage by thunderstorms, which are so frequent and terrific that every barn and every dwelling has to be protected by lightning conductors. The rivers are of course frozen in winter, but are generally open about the 20th of April.

In recent years much has been done to draw attention to the advantages offered by the province of Manitoba to



Street View in City of Winnipeg.

settlers, and to increase these advantages by improving the communications. Among other settlers in this province are several thousands of Mennonites, a kind of German Quakers, from Southern Russia, who are described as admirable colonists, "peaceable, thrifty, working people." The school system established by law is entirely denominational.

The present province of Manitoba consists in the main of the territory purchased from the Hudson's Bay Company in 1811 by the Earl of Selkirk, who planted a colony there in 1812. This territory was repurchased from the heirs of the Earl of Selkirk in 1836 by the Hudson's Bay Company, which continued to exercise authority over that part of Rupert's Land by the appointment of the governor and council of Assiniboia, till the whole territory of that company passed over to the Dominion of Canada.

The capital of the province is Winnipeg, situated at the junction of two great navigable streams, the Red River and the Assiniboine, known in the days of the

Hudson's Bay Company as Fort Garry, at which time it was only the principal trading-post of the company, with a population of about 300 employees of the company and half-breeds. In November, 1873, it was incorporated as a city, and on the 1st of January, 1874, it had a population of about 2000, while by the end of 1880 it had attained one of nearly 12,000.

The district of **Keewatin**, attached for administrative purposes to Manitoba, surrounds that province, its eastern boundary being a line running north and south a few miles west of 91° w. lon., and its western a line running due north on the meridian of 100° 8′ w. lon. It thus includes almost the whole of each of the three great lakes, Winnipeg, Manitoba, and Winnipegosis. A colony of Icelanders has been established in this district, and the members of it are said to be now thriving as they never did in their native island. The climate even as far north as Norway House, near the northern end of Lake Winnipeg, appears to be fully as good as that of Manitoba. Small fruits, cucumbers, musk-melons, and vegetables of all kinds come to maturity there, and barley is a sure crop.

BRITISH COLUMBIA is the only province of the Dominion of Canada which lies on the Pacific Ocean, and it includes, besides a large area on the mainland, the islands of Vancouver, Queen Charlotte Islands, and a large number of smaller islands lying in that ocean. The mainland is traversed by three mountain ranges, having a general north-westerly and south-easterly bearing, and all belonging to the Rocky Mountain system, though in the province the name Rocky Mountains is restricted to the innermost of the three ranges. Between the Coast Range and the second of the three ranges the surface forms an irregular plateau, the ground being mainly at a high level, though in some places it sinks into valleys, and in others rises into hills. The rivers of the province are more rapid in their course and often grander in their scenery than those of the eastern provinces, often flowing through cañons, or beds with lofty and precipitous rocky sides. The mountains are clothed with magnificent forests of gigantic conifers. The plateau, on the other hand, is very sparsely wooded owing to the great deficiency of rain, a deficiency which arises from the fact that the mountains of the Coast Range cause nearly all the contents of the moisture-charged clouds from the Pacific to be precipitated on their western slopes, and scarcely any further condensation takes place till the clouds are again arrested by the inner ranges. At Spence's Bridge, which may be taken as fairly representing the lower valleys of the plateau region, the total annual rainfall is only four inches, and the whole precipitation (including snowfall converted into water) only about ten inches. At Esquimalt in the south of Vancouver's Island the annual precipitation is 28½ inches. The same cause brings about a striking difference in the climate of the plateau region and the coast strip as regards temperature also. For while on both sides of the Coast Range the mean temperature of the year is several degrees higher than anywhere else in the Dominion, the plateau region is characterized by the same extremes of heat and cold as we have found to prevail in the other provinces of Canada, but the coast and the islands have these extremes much mitigated. At Spence's

Bridge the annual range of the thermometer (mean lowest to mean highest) is from – 9½° to 99° Fahr., at Esquimalt from 17° to 80° Fahr.

In consequence of the great deficiency of rain in the plateau irrigation is necessary wherever the cultivation of the ground is carried on, and the region is altogether much better adapted for stock-raising than agriculture in the narrower sense of the term. So far, however, minerals have formed the principal wealth of the province in all parts, and have been the principal means of attracting immigrants. Most important of these is gold, which brought the first great rush of settlers in 1856 and the following years, and which is obtained both by washing (in the bed of the Fraser River and elsewhere) and by the crushing of quartz reefs. Next in importance are coal (of which valuable mines exist on Vancouver's Island), iron, copper, bismuth, mica, limestone. The fisheries also now receive a large share of attention, and furnish a considerable share of the exports, which also include among the leading articles, gold, coal, timber, and furs. Fully three-fourths of the population consists of Indians and half-breeds. The inland tribes are chiefly migratory, but the coast and island tribes (which live chiefly by fishing) have permanent villages, and the houses of the Haidas on the Queen Charlotte Islands are distinguished from those of other tribes by the care bestowed on their construction and ornamentation. Tall carved posts generally form a conspicuous feature in front of these houses. Among immigrants in recent years a considerable proportion has consisted of Chinese, who are here regarded with as little favour as they are in California. Victoria (5000), situated amidst singularly beautiful environs in the south of Vancouver's Island, about three miles from the harbour of Esquimalt, one of the finest on the Pacific Coast, is the capital of the province.

NORTH-WEST TERRITORIES is the name given to all that portion of the Dominion of Canada which is not yet organized under a provincial government, and which consists partly of land incapable of settlement, and partly of land as yet settled only to a very limited extent, though destined ultimately to support an enormous population. Since the formation of the district of Keewatin and the extension of the boundaries of Ontario they do not form a continuous region, but are divided by Hudson's Bay and the districts mentioned into two sections, of which the eastern is often distinguished as East Main. The land well fitted for settlement lies in the western section, where favourable climatic conditions ascend as we go westwards to very high latitudes. The summer isothermal of 60° Fahr., which touches the north coast of New Brunswick in about 48° N. and passes the north end of Lake Winnipeg, cuts through the Great Slave Lake in about lat. 62° N., and the winter isothermal of 20° Fahr., which passes through Manitoba, ascends on the frontier of British Columbia to about 57° N. In this region in the valley of the Saskatchewan, along which the course of the Canadian Pacific railway has been traced, and in those of the Peace and Athabasca rivers, it is estimated that at least 500,000 square miles or more than 300,000,000 acres are well adapted for agriculture. Even in the more northerly of the two regions just mentioned, namely, in the Peace and Athabasca basins, wheat is known to come to great perfection, greater indeed than in the more southerly

region. This latter region, however, has one advantage over the more northerly one, inasmuch as a large part of it, lying outside of the forest zone, does not require to be cleared and is therefore fitted for immediate occupation. Within that zone, the southern limit of which runs close to the Assiniboine from Manitoba upwards and then ascends diagonally to the Lesser Slave Lake, extensive clearances will have to be made before it can all be brought under the plough. The mineral wealth of this section of the North-west Territories is hardly less striking than its agricultural capabilities. The route of the Canadian Pacific railway runs for more than two hundred miles through the southern end of a vast coal-bed, which appears to extend continuously northwards to the Arctic Ocean, and is estimated to cover an area of nearly half a million square miles. Iron ore also exists in rich deposits. At present the principal product of the region is furs, which are sold to European and American traders by the hunting tribes of Indians who form the main body of the population. Many of these natives are in a prosperous condition, and partially civilized through the care of Episcopalian and Roman Catholic missionaries.

East Main appears to be for the most part a region of the wildest and most complete desolation, inhospitable both in soil and climate, and inhabited only by a scanty Indian population, among whom dwell a few Roman Catholic missionaries. The coast adjoining St. James's Bay would seem, however, to have a more favourable character. In the summer of 1877 this part was visited by Dr. Bell, in connection with the geological survey of the Dominion, and his report states that there is here a strip of country, averaging perhaps twenty to thirty miles in width from the sea-shore, which appears as if it might some day have a certain agricultural value. The average temperature observed by him during his visit (from the 11th of July to the 21st of September) was about 62½° Fahr.

NEWFOUNDLAND.

Newfoundland is a large island of British North America at the mouth of the Gulf of the St. Lawrence, lying nearer to Britain than any other part of America, the distance from the port of St. John to the harbour of Valentia being only about 1918 miles. The area is about 40,200 square miles (less than half that of Great Britain), the length of coast-line about 1200 miles, or one mile of coast for 33 square miles of surface; the population in 1869, 146,536, or about 3½ to the square mile, the females being to the males in the proportion of 94 to 100.

The coasts are for the most part bold and lofty cliffs, but the numerous indentations afford a good many commodious and well-sheltered harbours. The island has never been thoroughly explored, but the interior appears to be rocky, with numerous tracts of moss, intersected by rivers and dotted with lakes, and but thinly wooded except on the banks of the rivers. The largest of the lakes,

called the Grand Pond, has a length of from fifty to sixty miles and a breadth of about five. The prevalent geological formation is granite. The climate, though severe, is not liable to as great extremes as the continental parts of British America. The average temperature of February, the coldest month, is 22° Fahr., of July, the hottest, 60°, of the year 40°. The winter, lasting from the beginning of December to the middle of April, is rendered disagreeable by a continual succession of storms accompanied by rain and snow; and the month of May and the beginning of June equally disagreeable by the prevalence of fogs on the banks and neighbouring shores (the south-east). For all that the climate is said to be healthful, and it is averred that in no part of the world is old age attended by so much bodily vigour and mental animation. The wild animals include the deer, wolf, bear, beaver, marten, and wild cat. The only animal peculiar to the island is the famous breed of dogs which takes its name from thence. The pure breed, however, is rarely to be met with there.

In several districts agriculture is prosecuted with success. Wheat and potatoes thrive peculiarly well. But the staple productions and exports of the colony are those of the fisheries, which are by far the most important in the world. The famous Banks of Newfoundland, lying in the east of the island and having an extent of about 500 miles in length and breadth, with a mean depth of water of about forty fathoms, are the most extensive submarine elevation on the globe, and swarm with fish of every variety, particularly cod. The fishery is prosecuted from June to October. Seals also are numerous on the coasts, and the seal-fisheries are next in importance to those of cod. There are no railways on the island, and the means of communication are otherwise defective.

Among the inhabitants there are a few Mic-mac Indians, but the aborigines have been extinct for many years. A large proportion of the settlers are natives of Ireland and of the islands of Guernsey and Jersey and their descendants. The Roman Catholics are the largest religious sect, the Church of England coming next in point of numbers. The constitution of the colony is similar to those of the Canadian provinces, except that a governor appointed by the British crown here exercises the functions of the lieutenant-governors of provinces. The island contained both French and British colonies till 1713, when it was entirely handed over to Britain by the Treaty of Utrecht. The capital and only important town in the island is St. John's (23,000), on the east coast. It has an excellent harbour, in which the tides are hardly perceptible.

The **Labrador coast**, comprising the whole of the territory drained by rivers flowing into the Atlantic, belongs to the colony of Newfoundland. The climate is of extreme severity, chiefly owing to the fact that the cold current from Baffin's Bay strikes directly against its shores. Besides the fur-traders at a few coast settlements and one or two missionaries, the only regular inhabitants are some Esquimaux in the north and a few Indians in the interior; but during the short summer the whole coast swarms with fishermen from Newfoundland, Nova Scotia, Quebec, and the United States.

The small islands of **St. Pierre** and **Miquelon**, with the still smaller ones

of **Langley** and **Isle aux Chiens**, all on the south coast of Newfoundland, belong to the French. The colony contains in all about 5000 inhabitants, who are mainly engaged in fishing.

UNITED STATES OF NORTH AMERICA.

The United States of North America form a federal republic whose territory stretches across the whole breadth of that continent between the Dominion of Canada in the north and the Gulf and Republic of Mexico on the south, and comprises also the territory of Alaska on the north-west of the Canadian Dominion. At present the republic is composed of thirty-eight states and eight territories with an organized government, besides the Indian territory, the territory of Alaska, and the District of Columbia, all of which are usually enumerated under the territories. At the time when the present constitution was drawn up, the total number of states was thirteen, and these thirteen are known as the original states. It must be borne in mind, however, that it is in some cases only the names of these original states that still preserve their identity, the boundaries of the states having been altered by the formation of new states out of territory belonging to the old, as Kentucky and West Virginia out of Virginia, Maine out of Massachusetts, and Vermont out of territory claimed by both New York and New Hampshire. The following table gives the names of the different states and territories arranged in groups adopted in certain official reports, and supplies various statistical and other information regarding them:—

	Date of Formation.	Area in sq. miles.	Population, 1880.	Pop. per sq. mile.	Percentage of increase.
NEW ENGLAND STATES.					
Maine (Me.), ...	1820	35,000	648,945	18	
*New Hampshire (N. H.), ..	1788	9,280	347,784	37	
Vermont (Vt.), ...	1791	10,212	332,286	32	½
*Massachusetts (Mass.), ...	1788	7,800	1,783,086	228	
*Rhode Island (R. I.), ...	1790	1,306	276,528	212	
*Connecticut (Conn.), ...	1788	4,750	622,683	131	
		68,348	4,011,312		15
MIDDLE STATES.					
*New York (N. Y.), ...	1788	47,000	5,083,173	108	16
*New Jersey (N. J.), ...	1787	8,320	1,130,892	136	
*Pennsylvania (Pa.), ...	1787	46,000	4,282,738	93	21½
*Delaware (Del.), ...	1787	2,120	146,654	69	
*Maryland (Md.), ...	1788	11,124	935,139	84	
		114,564	11,578,596		19
WESTERN STATES, E. OF MISSISSIPPI.					
†Ohio (O.), ...	1802	39,964	3,197,794	80	
†Indiana (Ind.), ...	1816	33,809	1,978,358	58	
†Illinois (Ill.), ...	1818	55,414	3,078,636	55	
†Michigan (Mich.), ...	1837	56,451	1,634,095	29	38
†Wisconsin (Wis.),...	1847	53,924	1,315,386	24	
		239,562	11,204,269		29½

	Date of Formation.	Area in sq. miles.	Population, 1880.	Pop. per sq. mile.	Percentage of increase.
SOUTHERN STATES.					
*Virginia (Va.), ...	1788	38,348	1,512,203	39	
West Virginia (W. Va.), ...	1863	23,000	618,193	27	
*North Carolina (N. C.), ...	1789	50,704	1,400,000	27	
*South Carolina (S. C.), ...	1788	34,000	995,706	29	
*Georgia (Ga.), ...	1788	58,000	1,538,983	23	
†Florida (Fla.), ...	1845	59,268	266,566	4	
†Alabama (Ala.), ...	1819	50,722	1,262,344	25	
†Mississippi (Miss.), ...	1817	47,156	1,131,899	24	
		361,198	8,725,894		31½
SOUTH-WESTERN STATES.					
Kentucky (Ky.), ...	1791	37,680	1,648,599	43	
Tennessee (Tenn.), ...	1796	45,600	1,542,463	34	
†Missouri (Mo.), ...	1821	65,350	2,169,091	33	
†Arkansas (Ark.), ...	1836	52,198	802,564	15	
†Louisiana (La.), ...	1812	41,346	940,263	23	
Texas (Tex.), ...	1845	274,356	1,597,509	6	95
		516,530	8,700,489		37½
WESTERN STATES, W. OF MISSISSIPPI.					
†Iowa (Io.), ...	1845	55,045	1,624,463	30	36
†Minnesota (Minn.), ...	1857	83,531	780,807	9	77½
†Kansas (Kas.), ...	1861	80,891	995,335	12	170
†Nebraska (Neb.), ...	1867	75,995	452,432	6	268
		295,462	3,853,037		81½
PACIFIC STATES.					
†California (Cal.), ...	1850	157,801	864,686	5	54
†Oregon (Or.), ...	1859	95,274	174,767	2	92
†Nevada (Nev.), ...	1864	112,090	62,265	½	
†Colorado (Col.), ...	1875	104,500	194,469	2	388
		469,665	1,296,187		74
TERRITORIES.					
Wyoming (Wyo.), ...	1868	97,883	20,788		
New Mexico (N. M.), ...	1850	121,201	118,430		
Utah, ...	1850	84,476	143,907		
Washington (W. T.), ...	1853	69,994	75,210		213
Dakota (Dak.), ...	1861	150,932	134,502		848
Arizona (Ariz.), ...	1863	113,916	40,441		823
Idaho, ...	1863	86,294	32,611		
Montana (Mont.), ...	1864	143,776	39,157		
Alaska, ...	1868	577,390	30,146		
Indian Territory (Ind. T.), ...		68,991	?		
District of Columbia (D. C.), ...	1790	60	177,638		
		1,514,913	812,740		90
Grand Total, ...		3,580,942	50,182,535[1]	14	30

[1] Exclusive of Indians not living among whites or subject to taxation.

The first column gives, besides the names of the states and territories, the contractions currently adopted for these names in America; the second column gives the year in which each of the original states adhered to the constitution, and the date of admission of the other states, and of the organization of the territories, the third the area in square miles, the fourth the population according to the census of June 1, 1880, the fifth the population per square mile, and the sixth

the percentage of increase of population between 1870 and 1880. An asterisk is prefixed to the names of the thirteen original states, and a dagger to the public land states, that is, those containing lands belonging to the general government of the United States.

PHYSICAL FEATURES AND CLIMATE.—See the general account of North America and the notices of the state-groups and individual states.

VEGETATION AND AGRICULTURAL AND OTHER PRODUCTIONS.—In the special notices more detailed information will be found concerning these topics, but it will not be without interest to give a preliminary survey under this head.

A large portion of the United States still remains in a state of nature, either because from its arid nature it never can be brought under profitable cultivation, or because the population is still too thinly scattered to be able to overtake it. On the former description of land vegetation is either altogether absent or produces very stunted forms; on the latter, it is usually of the most magnificent description, the surface being either covered by dense forests or spread out in boundless prairies of the richest verdure. Several of the trees are valuable not merely for their timber, but for other products, and among these trees special notice is due to the sugar-maple. Among cultivated crops the most important are wheat, the great staple of the western and middle states, but cultivated more or less extensively in every district; maize, equally adapted for universal culture, but most productive in the middle states of Ohio, Kentucky, Illinois, Indiana, Tennessee, and Missouri; tobacco, which begins to be cultivated on the parallel of 43°, but is only considered a staple in Virginia, Kentucky, Maryland, and Tennessee; cotton, which forms a staple in all the states from 39° s., and more especially in Alabama, Mississippi, Georgia, South Carolina, and Arkansas; rice, chiefly in South Carolina and Louisiana; cane-sugar in Louisiana and Florida; maple-sugar in New York, Vermont, Ohio, and Indiana; hemp and flax in all the western and middle states, but more especially in Kentucky, Ohio, Missouri, and Virginia; and hay, chiefly in New York, Pennsylvania, and Ohio. To show the extraordinary rapidity with which agricultural production is extending in the United States it may be mentioned that in the five years between 1874 and 1879 the production of maize (there frequently called simply corn) increased 82 per cent, that of wheat 47 per cent, oats 52 per cent, potatoes 70 per cent, cotton 34 per cent, and tobacco nearly 100 per cent. The actual production of maize in the latter year was upwards of 1500 million bushels, that of wheat nearly 450 million, oats 365 million, cotton five million bales of 450 lbs., and tobacco nearly 400 million lbs. The culture of the vine also has made good progress, and large quantities of wine are produced, chiefly in Ohio, Pennsylvania, Indiana, and California. In many parts of the Union the mulberry-tree grows spontaneously. Fruits also, both of the temperate and tropical climates, grow in great variety and abundance. Immense tracts of land have been impoverished, exhausted, and abandoned, but improved systems of farming are promoted by government, and are becoming generally adopted; and in this, as in other branches of industry, no country shows so much readiness in the adoption of methods of substituting machinery for hand labour. The domestic animals are the same as

those of Europe. Great attention is bestowed on dairy-farming, and in this department the United States is perhaps ahead of all the world in the system followed and the kind of utensils used. Hogs are reared almost without expense on the mast of the forests.

The principal **mineral products** of the United States are coal, iron, petroleum, copper, and the precious metals, these last being produced here in greater abundance than anywhere else in the world. For the first three minerals Pennsylvania is the chief centre of production, but Missouri is now a large producer of iron. After Michigan the most important copper-producing states are Vermont, Tennessee, North Carolina, and Maryland. In the production of gold California takes the lead, and is followed by Nevada, Colorado, Montana, Dakota, Oregon, Idaho, and others; and in the production of silver the leading territories are Nevada and Colorado, and the next in order Utah, Arizona, California, and Montana.

The number of inhabitants employed in **manufactures** is small compared with those employed in agriculture and commerce; but, partly from the native energy of the people, and still more perhaps from the adventitious encouragement which, whether judiciously or not, has been liberally given them in the form of protecting duties, various important branches of industry have made considerable progress. The three staple manufactures are cottons (chiefly of the coarser qualities), woollens, and iron. The cotton manufacture is carried on chiefly in Massachusetts, Pennsylvania, Rhode Island, Connecticut, and New York. The woollen manufacture is carried on to a considerable extent only in nine states—Massachusetts (nearly a third of the whole), New York, Connecticut, Pennsylvania, New Hampshire, Rhode Island, Vermont, Ohio, and California. The principal seats of the iron manufactures are Philadelphia, Pittsburg, Cincinnati, New York, Baltimore, and St. Louis. To these three industries may be added the making of boots and shoes by machinery, which is now largely carried on, especially in Massachusetts, the manufacture of sole-leather, an article with which America is now said to supply the world, the construction of railway and tramway cars, and the making of cutlery.

COMMERCE AND COMMUNICATIONS.—The trade of the United States is of such enormous extent that it has already outstripped that of all the countries of the Old World, with the single exception of Great Britain. The foreign trade is shared to a greater or less extent by all the maritime states of the Union, but more especially by New York, Massachusetts, Connecticut, Rhode Island, Maine, Pennsylvania, and Maryland. The exports consist principally of agricultural products, both vegetable and animal, including lumber and other articles obtained from the forest. Of the vegetable products of agriculture raw cotton took the highest place in value among the exports from 1821 to 1877–78, except during the period of the civil war (1861–65), but from the latter date the value of that export has been exceeded by that of the grain, meal, and flour exported. The value of the exports of the latter products (classed together in official reports under the name of breadstuffs) has increased within the last ten years at an astonishingly rapid rate. From an annual average of about £1,600,000 in the five years 1826–30,

it gradually increased to an average of £11,000,000 in the five years 1866–70, and then rose in the following ten years, sometimes by enormous annual increments, to upwards of £57,000,000 in 1880. The value of the exports of animals and animal products has advanced with the same gigantic strides. Tobacco, sugar, and naval stores (including tar, pitch, rosin, and turpentine), rank next in importance among the exports. Manufactured articles also begin to hold a high place in the list of exports. The more important are cotton goods, plain and coloured, cotton twist, iron and articles in iron, household furniture and other articles in wood, soap and tallow-candles, leather (raw and manufactured), boots and shoes, agricultural and gardening implements, cutlery, hats, wearing apparel, spirits, medicinal drugs, &c. The fisheries, in addition to dried fish, furnish large exports of whale and other fish oil, spermaceti, whalebone, &c., and have, in fact, become one of the most important interests of the Union. To the other leading exports above mentioned, that of gold in the forms both of coin and bullion must now be added. The imports, of which more than one-half enter the port of New York, consist of European manufactured goods of all sorts, but more especially of the finer descriptions, besides teas, silks, coffee, sugar, spices, wines, spirits, &c.

The commercial intercourse of the United States is carried on principally with Great Britain, which receives more than half of the exports, and sends about a fourth of the imports. Next in importance in this respect are France, Germany, and British North America, both as exporting and importing countries, Cuba, Brazil, China, and Japan among the countries from which the United States receives commodities, and Belgium, Russia, the Netherlands, and Spain, among those to which her own products are sent.

The international commerce of the United States is at present mainly carried on in foreign bottoms, which convey above 70 per cent of the aggregate imports and exports. Previous to the year 1860 from 75 to 80 per cent of the total commerce was carried by vessels belonging to the United States, but since the civil war the greater part of the shipping trade has been in the hands of foreigners, principally the British. In the course of the civil war the mercantile marine of the country was almost extinguished, and the law preventing (except in special cases) the registration of a vessel as belonging to the United States, unless it has been built in that country, a law intended for the protection of native shipbuilders, has proved an obstacle in the way of the revival of the country's shipping, since it is found that ships of the kind used in international commerce can be more cheaply built in Great Britain than in America. The coasting trade and fisheries, however, are still entirely in American hands, as these are reserved for subjects of the United States by special laws. Of late years there has been a large increase in the strength of the United States commercial navy.

The internal commerce of the country is greatly facilitated by the unrivalled natural highways in the shape of navigable rivers and lakes, and has been still further extended by the construction of canals and railways. Railway construction has been carried on on the most gigantic scale. The total mileage of

the system is greater than that of any other country, which is not surprising when the enormous area is considered, but the United States system is not only the greatest in the world in actual aggregate length, but also in the ratio of mileage to population. While the United States has about 16 miles of railway for every 10,000 of the inhabitants, the proportion in Great Britain and Ireland is only about 5 miles. These railways are mostly east of the Mississippi, but since 1869 there has been railway connection across the whole breadth of the United States territory between San Francisco and New York, and since 1879, when the first railway in Montana was opened, no state or territory in the Union, except the isolated territory of Alaska, is altogether without railways. The number of private letters annually carried by the post-office in the United States is equal to about 17 per head of the population, and the number of telegrams delivered equal to about one for every two persons.

MONEY, WEIGHTS, AND MEASURES.—Accounts are kept in dollars = about 4s. sterling, cents or hundredths, and mils or thousandths of a dollar. The currency is partly in paper and partly in specie. Till recently the paper circulated at varying rates below par, but on the 1st of January, 1879, specie payments by the state were resumed, in consequence of which the value of paper money has been raised to an equality with that of gold. Gold is coined in double eagles = 20 dollars, eagles = 10 dollars, half-eagles, quarter-eagles, and dollars. Silver is coined in dollars, half-dollars, quarters, dimes or 10 cents, half-dimes, and pieces of three cents. The only copper coins are cents and half-cents. The weights and measures are the same as those of Great Britain; but the old Winchester wine gallon, equal to ·833 of an imperial gallon, and ale gallon, equal to 1·01695 imperial gallon, and the Winchester bushel, equal to ·9692 of an imperial bushel, are used instead of the imperial standards, and a quintal of 100 lbs. is used instead of the cwt.

PEOPLE, IMMIGRATION, PUBLIC LANDS, EDUCATION, &c.—With regard to nationality the people are very much mixed. The aboriginal (Indian) population now bears a very small proportion to the whole number. In the year 1600 the total number of Indians in the territory now belonging to the United States (including Alaska) reached, according to the careful calculations of G. Gerland, about 600,000, while Col. Mallery's estimate places the total number of Indians north of Mexico at the time of the discovery of the continent at not more than 500,000. At the present day the whole number within the limits of the United States territory is about 300,000 (of whom about one-tenth are in Alaska); and though this figure shows, on either estimate of the former Indian population, a considerable decrease (a decrease attributable without doubt at least in part to barbarities practised by the white settlers), yet the decrease is not so great as was formerly imagined under the idea that the presence of the white man had acted in some way as a "blight" upon the "red man," who was believed under the influence of that blight to be vanishing or "withering" away. The investigations of Col. Mallery have thrown strong doubts upon this withering theory. Such official returns as exist giving statistics of Indian tribes in the United States prove that the tribes to which those statistics relate are

actually increasing, but, on the other hand, it is found that, among the more advanced tribes especially, there is going on in the United States the same process of absorption by the whites as we have already had occasion to mention as going on in the Dominion of Canada.

All the Indians in the United States are more or less under the control of government agents, but only a small minority are so completely incorporated with the general population as to be subject to the taxation and to share in the political rights of American citizens. For the most part they live in tribes in reserved territories, the principal of which is the large tract known as the Indian Territory, while the others are in Montana, Dakota, and other parts chiefly west of the Mississippi. In 1825 the United States government inaugurated the policy of removing the untaxed Indians east of the Mississippi to the west of that river, and in 1834 the Indian Territory was set apart by Congress for the reception of these deported tribes. In 1880 the total number of Indians in this Territory exceeded 78,000, four-fifths of whom are described as civilized.

The bulk of the population of the United States consists of settlers from Europe and their descendants. The majority of these are of Anglo-Saxon origin, but in some parts, originally settled by people of different origin, other nations are still represented in considerable numbers by descendants of these original settlers. (See Historical Sketch.) Immigration again has increased and is constantly maintaining the diversity of the population, the new immigrants coming in varying proportions from all parts of the world. Since 1820 the stream of immigrants has been uninterrupted, and the total number of immigrants from that date to 1880 considerably exceeded ten millions. Between the censuses of 1870 and 1880 about one-fourth of the whole increase of population was due to immigration. In 1880, when the total number of immigrants was 457,000, 32 per cent of the immigrants came from Great Britain and Ireland (chiefly Ireland), 22 per cent from the Dominion of Canada, 18 per cent from Germany, 13 per cent from Sweden and Norway, and the remainder in smaller proportions from Italy, Austria, Denmark, Switzerland, France, China, and other countries. These percentages, however, are so far misleading in that the immigrants from the Dominion of Canada are for the most part not originally from Canada, but have merely passed through that country on their way from Europe, in most cases probably from the United Kingdom and the other countries of northern Europe. The Chinese all come by the port of San Francisco, and are mainly settled in California and the adjoining territories.

Another considerable element of the population, the Negro or "coloured" people, was introduced by the slave-trade, and is consequently most numerous in the former slave states, namely—Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North and South Carolina, Tennessee, Texas, Virginia (including West Virginia), and the District of Columbia. They are most numerous in proportion to the whites in South Carolina, Mississippi, and Louisiana, in all of which there are more than a hundred negroes for every hundred whites, the proportion in South Carolina reaching 154½. In Alabama, Georgia, Florida, Virginia, North Carolina, and

the district of Columbia the proportion exceeds fifty for every hundred whites. They are also found in considerable numbers in Philadelphia, New York, and other large cities in the north-east. At the census of 1880 they made up rather more than 15 per cent of the entire population.

Of the European emigrants to America an increasing proportion every year proceed westwards to the states and territories west of the Mississippi, in which, as is shown in the table of area and population, &c., the ratio of increase of population between the censuses of 1870 and 1880 was greatest. At one time it was one of the greatest objections to European emigration that so many of the emigrants, particularly those from Ireland, were in the habit of remaining in New York and in the larger eastern cities generally; but from a recent official report on the subject we learn that this objection no longer holds good, and that at least 60 per cent of those arriving (Irish as well as others) proceed at once for the west. Hardly any immigrants settle in the southern states east of the Mississippi. As in Canada a strong inducement is held out by the government to settlers in the public lands by the offer of free grants. Under the Homestead Act a settler can obtain a grant of 160 acres on any of the lands which the Congress has at its disposal in all the public land states (indicated by a dagger in the table already referred to) and in all the territories. The only charge on the settler is for the deed of settlement, which costs only a few shillings. The government land is not, however, reserved for settlers. Vast tracts have been granted to some of the great railway undertakings, and others have been purchased by companies or individuals who mean either to sell the land again for their own profit or to work it themselves in a series of great farms. Besides agricultural settlers the immigrants from Europe in recent years have included a large proportion of skilled labourers, embracing every known handicraft.

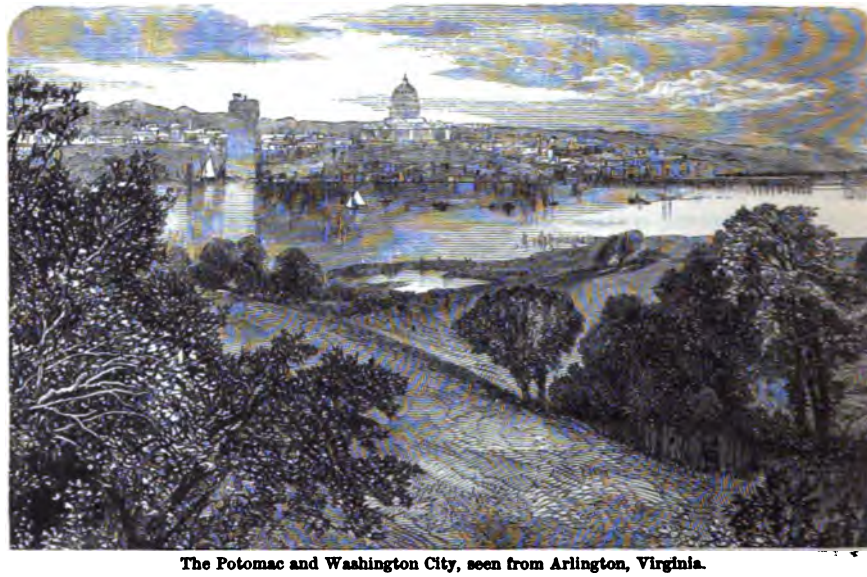
At the first census of the United States, in 1790, the total population was under 4,000,000, so that the population has increased more than twelve-fold between that date and the census of 1880. It must be remembered, however, that the area included in the latter census is enormously greater than that embraced by the first. Down to 1860, the last census before the civil war, the average rate of increase during each interval of ten years was 34½ per cent. In the following decade it was about 22½, and in the last, as shown in the table, 30 per cent. At the census of 1870 there was a preponderance of males over females in all the territories and in all except sixteen states and the District of Columbia.

There is no strictly national system of education in the United States, every state being left to legislate on the subject for itself. In the public lands, however, two "sections" of one square mile each are reserved in every "township," or square of six miles (thirty-six square miles) for common schools, so that education may go hand in hand with colonization. In the parts already settled it receives general attention. The country is covered with a system of common schools, in which the youth of both sexes are instructed upon an equal footing. In the former slave states there are separate schools for coloured children. But in spite of the efforts made to promote education, particularly in the elementary

branches, nearly 12 per cent of the population in 1870 were found to be unable either to read or write, a consequence partly of the long prevalence of slavery in certain of the states, and partly of the large number of uneducated immigrants. Superior education is provided for in colleges and universities, the Universities of Harvard, Yale, and Princeton being amongst the chief. The constitution of the States grants perfect equality to all creeds and religions. Nearly all the sects of Europe are represented, and there are a good many others of native origin and quite a native complexion.

CONSTITUTION, GOVERNMENT, &c.—The government of the United States is a federal republic based on the constitution of 1787, partially modified by subsequent amendments. Each state maintains its own separate independence, and by means of a state legislature and executive has complete management of its own peculiar affairs, but the combined states, considered as a Union, have one supreme legislature, which takes the name of Congress, and consists of a Senate and House of Representatives. The Senate consists of two members from each state elected by its own legislature for six years, one-third of the whole body being renewable biennially. Senators must be resident in the state which chooses them, citizens of the United States of nine years' standing, and at least thirty years of age. The House of Representatives consists of members chosen biennially by the people of the several states, in numbers proportioned to their population as ascertained by a decennial census. Each state appoints at least one representative. Representatives must be resident in their electing states, citizens of the United States of seven years' standing, and at least twenty-five years of age. Its leading powers are to levy taxes, duties, imposts, and excises, to pay the debts and provide for the common defence and general welfare of the Union, to regulate commerce with foreign nations and among the several states, to coin money, declare war, raise and maintain an army and navy, &c. The executive is vested in a president chosen for four years, but re-eligible indefinitely, by the ballot of an electoral college. This college is peculiarly formed. None of its members can be either a senator or representative in Congress, or in possession of any office of profit or trust under the general government. Each state, in such manner as its legislature may provide, chooses as many electors as it sends senators and representatives to Congress. The president and vice-president are chosen by the majority of these electors; in the case of an equality of votes the president is chosen by the House of Representatives, and the vice-president by the Senate. The president, who must be a native-born citizen, thirty-five years of age, and resident in the United States for fourteen years, is commander-in-chief of the army and navy, and has the power, in concurrence with two-thirds of the Senate, to make treaties, appoint civil and military officers, levy war, conclude peace, &c. He has even a veto on the laws passed by Congress, at least until such time as the same law, when again brought under consideration, has received the assent of two-thirds of both houses. The vice-president presides in the Senate, acts for him in cases of temporary disability, and, in case of death or permanent disability, succeeds him for the whole period of his office which was unexpired. The seat of the general government of the United States is

Washington, in the District of Columbia, a district inclosed by Maryland, but not under the government of any particular state. The judicial powers of the Union are vested in a supreme court, presided over by a chief-justice and eight associate judges, and such other inferior courts as Congress may from time to time establish. All these judges hold their office during good behaviour, and are removable only on impeachment; but in order to form a correct idea of the judicial system of the United States it is necessary to remember that the courts now mentioned judge only in matters which fall under the category of national, and that each separate state administers justice by its own judges, many of whom owe their appointments to the suffrages of the people, and hold them only for



The Potomac and Washington City, seen from Arlington, Virginia.

limited periods. In the territories the governor and the administrative and judicial officers are appointed by the president of the United States, but a territorial legislature is intrusted with limited powers subject to the approval of Congress.

The general government derives its revenues, almost without direct taxation, mainly from customs and internal duties on spirits, fermented liquors, tobacco, banks and bank cheques. The imposition of the customs duties is based on the policy of protection, that is, of encouraging the development of home industries by taxing the imported products of foreign industries, the competition of which would be likely to destroy the home industries which it is designed to encourage. The leading heads of expenditure are interest on debt (chiefly contracted during the civil war of 1861–65) and the maintenance of the army and navy. The strength of the army is limited in time of peace to 25,000 men. The term of service is five years. Certain regiments are composed of negro soldiers commanded by white officers.

CHIEF TOWNS.—At the census of 1880 there were twenty towns in the United States with a population of upwards of 100,000, six more than at the census of 1870. These towns were—New York, Philadelphia (Pennsylvania), Brooklyn (New York), Chicago (Illinois), Boston (Massachusetts), St. Louis (Missouri), Baltimore (Maryland), Cincinnati (Ohio), San Francisco (California), New Orleans (Louisiana), Cleveland (Ohio), Pittsburg (Pennsylvania), Buffalo (New York), Washington (Dist. Col.), Newark (New Jersey), Louisville (Kentucky), Jersey City (New Jersey), Detroit (Michigan), Milwaukee (Wisconsin), and Providence (Rhode Island). Further information regarding these towns will be found in the special notices of the state-groups.

HISTORICAL SKETCH.—The dates given in the table at the beginning of this section will give an idea of the growth of the United States; only it must be remembered that in many cases the states had belonged to the Union as territories before they were admitted as states. Here a few additional particulars may be added. The first settlement within the limits of the United States was made by the English in Virginia in 1607. The foundation of the New England colonies by the Puritan "pilgrim fathers" followed in 1620. Maryland was settled by English Roman Catholics in 1634, Rhode Island by refugees from New England in 1636, and Pennsylvania by the Society of Friends in 1681. New York was first settled by the Dutch, and Delaware and New Jersey by Dutch and Swedes, at different periods in the seventeenth century, but all of these settlements had come into the hands of the English by 1667. On the 4th of July, 1776, the English colonies, having become involved in a war with the mother country on account of a claim made by her to tax the colonies for non-colonial purposes, declared their independence, and the event of the war made good this declaration. Before the acquisition of Canada by Great Britain the French had had settlements in Ohio, Indiana, Illinois, and Michigan, and these had passed into the possession of Britain along with Canada. On the establishment of the independence of the United States, Ohio, Indiana, and Illinois at once became United States territory, but the Michigan settlements were claimed by Britain as part of Canada and were not relinquished till 1796. Since then the territory of the United States has been increased by purchase, settlement, and conquest. Early in the eighteenth century settlements had been formed on the Mississippi by the French, who gave the name of Louisiana, in honour of Louis XIV., to a vast region, estimated at upwards of a million square miles, to the west of that river and about its mouth. In 1717 this region was acquired by the famous Mississippi Company, subsequently became a crown colony of France, in 1762 passed into the hands of Spain, in 1800 was restored to France, and lastly in 1803 was purchased by the United States from Napoleon. The country to the east and west of that had been held by Spain for the most part from the sixteenth century. Florida, which then extended along the coast to the Mississippi, was in the possession of Great Britain from 1763 to 1783, but became Spanish again in the latter year, and was purchased from Spain by the United States in 1819. At this time the Spanish provinces in the west were in revolt against the mother country, and they ultimately formed them-

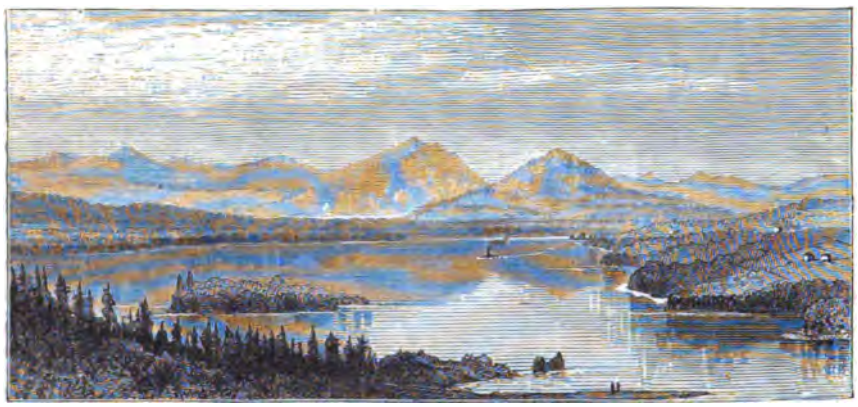
selves into the republic of Mexico. Of this republic Texas formed a part till 1835, when it revolted, and in 1845 it was admitted as a state to the Union. Upper California and New Mexico, the former including the present state of California, together with Nevada and Utah, and the latter including nearly the whole of the present territory of New Mexico, together with Arizona, two-thirds of Colorado (the western half and a tract along the south) and south-western Kansas, were conquered from Mexico in the war of 1846–48. The small portion of New Mexico south of the Gila was acquired by purchase from the same state a few years later. Oregon, Washington, and Idaho (the last attached to Washington till 1863) were jointly occupied by Great Britain and the United States till 1846, when the parallel of 49° N. was adopted as the boundary in the west between the dominions of the two powers. The remaining territories were peacefully occupied or taken from the Indians. In 1861 a disruption of the Union was threatened, eleven of the slave-holding states then seceding, but in the civil war that followed, and which lasted till 1865, the seceding states were subdued and compelled to return to the Union. In the course of this war (on the 1st of January, 1863) slavery was abolished throughout the United States territory by a decree of the Federal government (the government of the non-seceding states).

NEW ENGLAND AND NORTH-EASTERN STATES.

(MAINE, NEW HAMPSHIRE, VERMONT, MASSACHUSETTS, RHODE ISLAND, CONNECTICUT, NEW YORK, NEW JERSEY, PENNSYLVANIA, OHIO, INDIANA, MICHIGAN, WISCONSIN, ILLINOIS.)

This group of states, the first six of which form the New England states, embraces all the states lying to the south and east of the great lakes, as far south as the Ohio and the southern boundary of Pennsylvania and New Jersey. The whole area of the group is about 409,000 square miles, or more than four and a half times that of Great Britain. In the east the surface is to a large extent mountainous or hilly, being broken by mountains belonging to the Appalachian system, which enters the group in several parallel ranges on the southern frontier of Pennsylvania, and runs through all the states to the north-east, thinning out as it proceeds northwards. On the west of this system the surface consists mostly of gently undulating plateaux or plains. The climate and products resemble on the whole those of the adjoining parts of the Canadian Dominion; but the summer lengthens, the mean temperature rises, and the extremes of temperature become moderated from north-east to south-west, and in some of the states products of a warmer climate than any found in Canada are grown. Tobacco is cultivated as far north as New Hampshire, and in several states of the group a variety of sorghum is grown not only as a fodder crop, but also on account of the sugar and syrup obtainable from it by a comparatively simple process. Almost every part of the group belongs to the northern forest or woodland region of Grisebach, and is hence more or less abundantly supplied with timber trees. In some places, especially towards the north and where the soil is sandy, these consist almost entirely of conifers, but

in others foliage trees are found in all that variety which has been noted by Sir Joseph Hooker as characteristic of North American forests even beyond the tropics. The rainfall of the region is generally ample, and very equally distributed through the various seasons of the year. Perhaps the most delightful period of the year throughout the region, but more particularly in the inland states bordering on the great lakes, is that known as the Indian summer, which usually occurs every year about the end of October or in November. A period of storms is then followed by dry, mild, and placid weather, which lasts without interruption for two or three weeks. During all that time the sky is red and the atmosphere in the direction of the horizon filled with a haze of a peculiar blue colour like that of smoke in sunlight; south-west breezes prevail, but so gentle as not to disturb the surface of the lakes; and the woods are in their



Oquossoc or Rangeley Lake, looking toward Bald Mountain, Maine.

brightest colours. Heavy rains at last come to clear the air, and these usher in the storms of winter.

MAINE, the north-easternmost of the New England states, is larger than all the others put together, and larger also than Ireland. In the north and north-west of the state are groups of detached mountains, with one summit, Mount Katahdin, nearly 5400 feet high. The remainder of the surface is more level. All parts abound in beautiful lakes famed for their trout. About three-fourths of the area, principally in the north, is covered by forests of pines, spruce, hemlock, and other firs, and various deciduous trees, and contains no human inhabitants except when visited by the lumberer in search of timber, firewood, and tanner's bark, the extractor of maple-sugar, and the trapper and sportsman who come to lie in wait for the moose, the black bear, and various fur-bearing animals, which are harboured in the forest. In the settled parts the hay and potato crops are specially good. The mineral wealth of the state is said to be abundant, but is not yet greatly developed. The fisheries, on the other hand, are pursued with great industry, and yield large quantities of cod, mackerel, hake, herring, &c., and ice is an important product. Among other industries the principal are

timber-sawing, ship-building, and the manufacture of beet-sugar. In the north-east there are some old settlers of French (Acadian) origin, and in recent years there has been a considerable immigration of Canadian French. The largest town and principal seaport is Portland (34,000[1]) on Casco Bay. The principal seats of the lumber trade are Bangor and Calais, both at the head of deep inlets. A law passed in 1851 forbids the sale in the state of any intoxicating liquor for use as a beverage. The state capital is Augusta on the Kennebec, a small town.

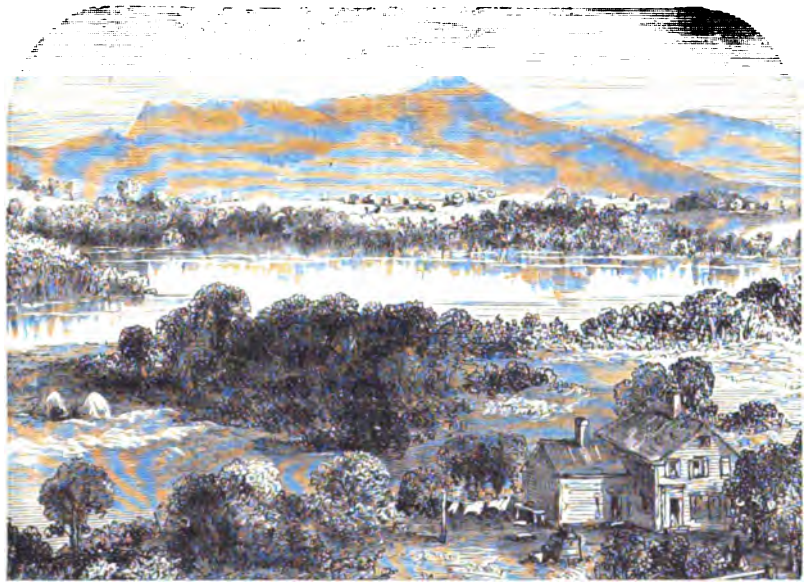
NEW HAMPSHIRE, on the south-east of Maine, is famous for the wild and picturesque scenery of its mountains (the White and Franconian Mountains) and for the beauty of its lakes, and is hence often known as "the Switzerland of America." Mount Washington in this state (6228 feet) is the highest mountain belonging to the northern part of the Appalachian system. Everywhere the state is well wooded, and in the north are primeval forests. Much of the surface is stony and better adapted for pasture than for tillage, and where the ground is under tillage the hay crop is by far the most important. But agriculture has long been declining in the state, and the population has been migrating to manufacturing towns, where the weaving of cotton and woollen goods, the construction of cars and carriages, the making of shoes, and other industries, are carried on with increasing energy, water-power being here, as in many other manufacturing districts of America, largely utilized for the purpose. Iron ores are the only ores of importance; but among other mineral products are a fine building granite and beryls, of which gem some of the largest specimens known to exist have been found in this state. The capital of the state is Concord, a busy town on the right bank of the Merrimac; but the most populous town is Manchester (33,000), on the same river, eighteen miles further south, an important seat of cotton, woollen, and other manufactures.

VERMONT, to the west of New Hampshire, is traversed from north to south by the Green Mountains, mainly in two ridges, of which the eastern is the more continuous, and the western the higher and steeper. The mountains are clad with dense forests, and present much rugged and picturesque scenery, while on the west and to a large extent also in the east the eye is pleased with the prospect of wide expanses of beautiful pastoral country. The abundance of its crops and the extent of its pastures give Vermont a leading place among the agricultural states of the Union, and no state excels it in the production of maple sugar. Its manufactures also are important, and among its minerals are iron, manganese, copper, slate, and above all rich quarries of fine marbles. Lake Champlain, on the western border of the state, a lake which is more than twice the length of Loch Lomond and at its widest of about twice the maximum breadth of that lake, is no less visited than Loch Lomond on account of the beauty of its scenery, and affords important steam navigation. There is a large transit trade through Vermont by rail from the western states and Canada to the ports of Boston and Portland. Burlington, on Lake Champlain, has a large

[1] The populations are those of 1880 (in round numbers) except when some other date is expressly stated.

lumber trade with Canada, and is by far the largest town in the state, though having in 1870 only about 15,000 inhabitants. The capital of the state is the small town of Montpelier, about 35 miles south-east of Burlington.

MASSACHUSETTS, lying to the south of New Hampshire and Vermont, has a less genial climate and a soil naturally less propitious than either of these states, and yet is the most densely populated state of New England. Chilling east winds prevail along the coast, and are the cause of an unusually large proportion of the inhabitants falling victims to pulmonary consumption. The Connecticut valley is one of the most beautiful and fertile districts in the world,



The "Stockbridge Bowl" or Mountain Mirror, Housatonic Valley, Massachusetts.
At Stockbridge lived Jonathan Edwards and Nathaniel Hawthorne.

but it is the only part of the state where the husbandman is favoured by nature. West of that valley the country is mountainous, and east of it for the most part broken and hilly, in the extreme south-east level but sandy and stony. This part of the state is covered with pine forests, and abounds with small shallow lakes, all of which are filled with pure fresh water, though many of them have no connection with the sea. In spite of the obstacles presented by nature to agriculture the cultivation, even where the soil is inferior, is remarkably good. The more stubborn the ground the greater have been the skill and industry shown by the farmer in vanquishing that stubbornness. Nevertheless agriculture is rapidly declining in extent. The ground is becoming more and more turned into woodland, and the people are going over to the manufacturing industries which are the main support of the dense population. Massachusetts is the centre of the boot and shoe, leather, and woollen manufactures of the United States, and carries on to a greater or less extent almost every other

branch of manufacturing industry. The fisheries are also of the first importance. More than half the number of fishing vessels belonging to the United States and more than five-eighths of their tonnage are owned in Massachusetts. Great attention has lately been bestowed on the stocking of the fresh waters also with fish. From these waters a great deal of ice is obtained for export, and that of Lake Wenham near Boston is famed for its purity. Among the minerals of the state are iron ore, rich and apparently important ores of silver (argentiferous galena), syenite, marble, limestone, &c.

Boston (363,000; an increase of 44 per cent since 1870), on Massachusetts Bay, is the capital of the state, and the fifth in size among the cities of the Union. It is an important seat of trade and manufactures, has a large foreign commerce and a still larger coasting trade, but is principally celebrated as having the reputation of being the chief centre of culture in the United States. As might be expected from that fact it is one of the chief seats of the printing and publishing trades in America, but a still better evidence of its title to that reputation is its possession of a free library numbering not far short of 400,000 printed volumes, besides pamphlets, MSS., engravings, &c. Of its public buildings the most noteworthy perhaps is the Faneuil Hall, often styled by the people of the United States "the cradle of liberty" from the fact that it was the scene of many public meetings of the American colonists at the time of their final struggle with the mother country. In immediate contiguity to Boston, from which it is separated only by the Charles River, is Cambridge (53,000), the seat of Harvard University, the oldest and best endowed, and it may safely be added the most renowned institution of the kind in the United States, an institution to which Boston probably owes the greater part of its reputation for science and learning. The university was founded in 1638, and takes its name from its earliest benefactor, the Rev. John Harvard. Lowell (59,000), on the Merrimac, in the north of the state, and Worcester (58,000), on the Blackstone, near the centre, are both important manufacturing towns, the former being one of the chief seats of cotton and woollen manufactures, while the manufactures of the latter are more varied.

RHODE ISLAND, the smallest of the New England states, and indeed of all the states in the Union (about the size of the English county of Salop), lies between Massachusetts and Connecticut. It has in general a rough, hilly, and stony surface, but has no proper mountains. Dairy-farming and cattle-rearing are the chief branches of agriculture, and manufactures form here, as in the state last noticed, the most important industry. In the printing of woollen and cotton goods it ranks before all other states, and the making of machinery is also largely carried on. The fisheries and the coasting trade are also important, and the state possesses beds of coal (generally hard anthracite or semi-graphite) often deeply buried in drift. The state has two capitals, the one, Providence (105,000), the second city in New England in point of wealth and population, delightfully situated round a little lake called the Cove, and having most of its dwellings built of wood; the other, Newport (in 1870, 14,000), on the island of Rhode Island, a favourite watering-place. Providence is the seat of a Baptist college founded in 1764, and among its manufactures that of solid silverware

holds a prominent place. Providence River flows out of the Cove into Narragansett Bay.

CONNECTICUT, lying to the south of Massachusetts between Rhode Island and New York, has its eastern part covered with rounded stony hills affording excellent pasture, and having larger and smaller cultivated valleys intervening, its middle part watered by the Connecticut, which is bordered except towards the mouth by fertile lands, the staple product of which is tobacco, and its western part broken by hills often rugged and precipitous. The state has abundant water-power, which is largely put to use in manufactures. It likewise possesses valuable iron ores which have long been worked, and carries on very important menhaden fisheries, the menhaden being a fish allied to the shad, caught for its oil and for the sake of a manure obtained from it to which the name of fish

Lake George, Sabbath-day Point, New York State.

guano is given. The Connecticut River is navigable to Hartford, the Thames to Norwich. Hartford (43,000) is the capital of the state, and is one of the chief centres of the United States insurance business. The largest town in the state is Newhaven (63,000), on a bay of the same name, celebrated as the seat of Yale College, a university founded in 1701, and rivalling in reputation that of Cambridge, Mass. It is also the seat of several excellent schools, conspicuous among which is the Hopkins Grammar-school, dating from 1660.

NEW YORK, lying to the west of the New England states, has an area equal to more than half that of Great Britain. The northern part of the state is a forest-wilderness, and affords few valuable products except timber, iron ore, and some furs. Almost completely surrounding this wilderness is a very fertile belt, the southern portion of which is the rich Mohawk valley. The centre and west of the state consists of a beautiful and fertile plateau, which in the south is cut into an irregular succession of ridges and valleys. The Appalachian system is represented in this state by the Catskill and Helderberg Mountains in the south-east and the Adirondack Mountains in the north-east. Long Island, which faces the Connecticut coast and has a length of 110 miles, is moderately level and has a fruitful soil. More than half the area of the state is improved and cultivated land. The Mohawk valley is renowned for its sorghum (here called broom-corn) and factory-made cheese; but butter is the staple agricultural

product of the whole state. The mineral wealth of the state is not great. The only important ores are those of iron, much magnetic and specular iron ore being obtained from the Adirondack Mountains and other parts of the highlands. Coal is entirely absent. All branches of manufacture are carried on, and while they are centred in New York city they are well distributed over the whole state. The inland commerce is very extensive, and is served by an admirable system of communications, among the most important of which are the canal connecting Lake Champlain with the Hudson River, and that connecting Lake Erie at Buffalo with the same river at Albany. The foreign commerce is more important by far than that of any other state in the Union. Long Island is a great seat of the menhaden fishery.

New York city, the commercial metropolis of the United States and the most populous and important city in the western hemisphere, occupies the greater part of a small island called Manhattan, situated at the mouth of the Hudson River, and bounded on the west by that river, and on the north by a small branch of the river which joins at a point called Hell Gate the strait or channel known as East River, separating Manhattan from Long Island. In a wider sense, however, New York may be said to include the whole aggregate of cities built round the mouth of the Hudson, having a common harbour, and forming a single centre of commerce and industry. In this sense it is made up of New York proper (1,206,000), Brooklyn (567,000) on Long Island, and Jersey City (121,000) and Hoboken (31,000) in New Jersey. The aggregate population is thus 1,925,000, so that among the cities of the world this centre of population comes next after London and Paris and very nearly approaches the latter. Between 1870 and 1880 the population of the aggregate of cities just mentioned increased by 34 per cent, and since the first census of the United States in 1790 New York proper has grown from a population of 33,000, or has increased about thirty-six-fold. New York proper and Brooklyn are at present being connected by a suspension-bridge designed to accommodate railway traffic as well as foot passengers and carriages. The harbour of New York is approached from the sea from two directions, from the north-east by Long Island Sound and from the south-east by Sandy Hook. The former approach is impracticable for large vessels and not without danger even for small ones on account of the great rapidity of the current and the existence of numerous rocks at Hell Gate; but the United States government, looking to the importance of having this channel opened for commerce for vessels of all sizes, and to the additional security which this opening of the channel would give to New York in case of war, has been engaged for many years in great blasting operations to remove the rocks that obstruct the navigation. The value of the foreign commerce of the port of New York exceeds that of any other port in the world except London and Liverpool. The southern and older part of the city of New York is irregularly built in narrow streets, but the more modern portion in the north, on the other hand, is laid out with a formal regularity such as is rarely seen in any but American cities. This part is almost entirely divided into square blocks separated from one another by broad "streets" and "avenues," the latter all running

in one direction (north to south). The streets and avenues are mostly named in order by numbers. Broadway passes diagonally through the middle of this part.

The other towns in New York state containing in 1880 a population of more than 50,000 are—Albany (91,000), the state capital, on the right bank of the Hudson River about 140 miles above New York; Troy (57,000), on the left bank of the same river, about six miles above Albany at the head of steamboat navigation; Buffalo (155,000), at the eastern extremity of Lake Erie, the western terminus of the Erie Canal, and hence the centre of a vast trade in

New York—Madison Square.

grain and other commodities; Syracuse (52,000), on the same canal about midway between Buffalo and Albany; and Rochester (90,000), also on the Erie Canal about midway between Buffalo and Syracuse.

NEW JERSEY, south of New York state and east of Pennsylvania, consists to the extent of about three-fifths of a very level and fertile tract of country lying in the middle portion of the state. The north-west is rather hilly, and the southern extremity is a plateau, a large part of which is sandy and covered with pine forests. The state is excellently adapted both for agriculture and manufacturing industry, its fertile and easily cultivated soil favouring it for the one pursuit and its abundant water-power and ready access to the Pennsylvanian coal-field for the other. The pine region in the south is peculiarly well suited for the cultivation of grapes and small fruits. In the hilly region in the

north-west there are rich hæmatite and magnetic iron ores, and among other minerals may be mentioned greensand marl, which is much used as a fertilizer. The most populous town in the state is Newark (136,000), a manufacturing place in the north-east on the Passaic river, four miles above its entrance into Newark Bay; and the next in size Jersey City (121,000), a little to the east of Newark, already mentioned as one of the New York group. The capital of the state is Trenton (in 1870, 23,000), on the Delaware at the head of tidewater and of navigation.

PENNSYLVANIA is a state nearly equal in size to New York, which borders it on the north. Its most conspicuous physical feature is the parallel ranges of mountains belonging to the Alleghanies or Appalachian system, which here attains its widest development. The south-eastern angle of the state is traversed by lower ridges, and is on the whole very fertile and beautiful. The north-western section is varied in character and has numerous fertile valleys. In general there is only a comparatively small area which might not be made agriculturally productive; but the distinguishing characteristic of the state is its boundless wealth in minerals. Anthracite coal is found in three long narrow fields east of the main range of the Alleghanies, having a total area of upwards of 470 square miles. West of that range bituminous coal is found in every county but one. Iron ore is found in almost all parts; petroleum is obtained in immense quantity from Upper Devonian strata in the anthracite region, and from the same strata salt is derived by the evaporation of strong brines brought to the surface by artesian wells. The Delaware river has on its banks the only ship-building yards in the United States where the building of iron ships has been carried on to any considerable extent, these yards being principally at Philadelphia and Chester in Pennsylvania, and Wilmington in Delaware state. The state of Pennsylvania is named after the Quaker William Penn, who received a patent for the settlement of the district from Charles II. in 1681.

Philadelphia (847,000; an increase of about 26 per cent since 1870), the second city in the United States in respect of population and the second port in respect of the extent of its commerce, is situated in the south-east of the state at the point where the Schuylkill, which traverses the town, enters the Delaware. Almost the whole city is laid out with the same formal regularity as characterizes a great part of New York, and the method of numbering the streets is based on as systematic a principle as the general plan of the city. Every one of the square blocks into which the city is divided begins a new 100 for each of the four streets that surround it. In proportion to population the city (including much vacant ground) covers an unusually large area, the extent of the municipality exceeding 129 square miles. One of its parks, Fairmount Park, has an area of 2740 acres, and is beautiful both in its natural situation and in its laying out. The Delaware is navigable to Philadelphia for merchant vessels of the largest size, and Philadelphia is the starting-point of the only line of Transatlantic steamers owned in America. The city was founded by William Penn in 1682, and named by him Philadelphia (brotherly love) in allusion to the principles of the brotherhood to which he belonged. The contiguous towns

of Pittsburg (156,000) and Alleghany (79,000) in the west of the state, where the Alleghany and Monongahela Rivers unite to form the Ohio, are famed for their manufactures of all kinds, but more especially iron and cotton. Scranton (46,000), on the Lackawanna about 110 miles north by west of Philadelphia, and Harrisburg (31,000), the state capital, on the Susquehanna, are the only other towns in the state with a population exceeding 30,000.

OHIO in the west of Pennsylvania consists of a table-land the watershed of which has an average height of about 1160 feet, and divides the table-land into two portions, the northern level or rolling gently downwards to Lake Erie, and the southern rather steeper, and intersected by the deep troughlike valleys which the tributaries of the river Ohio have cut for themselves. Ohio takes an important place both among the agricultural and mineral states. Except the steep bluffs by the rivers there is very little inarable land. The section in the north-east known as the Western or Connecticut Reserve, from having been formerly dependent on Connecticut, is celebrated for its dairy produce and its live stock, and both this section and the Miami valley are famed for their apples. Great quantities of excellent wool are produced in the state, the south-eastern portion of which is unsurpassed for this product. In the north-west there is a large well-timbered area. As regards minerals the strip extending from Marietta to Portsmouth, both on the Ohio, in the south-east of the state, contains the most magnificent deposits of carbonates of iron in the Union, and in the north there are extensive beds of excellent furnace coal, which forms the basis of the great iron industry of Cleveland and the neighbouring towns, the ores used in that industry being partly those of the state and partly imported from Michigan. The fisheries of Lake Erie are important, and the Maumee River is said to be the most prolific fish-producing stream in the United States.

The most important town in the state is Cincinnati (255,000), on the Ohio in the south-west. It is of quite recent origin. Settled for the first time in 1788 it remained an inconsiderable village till 1816, when the navigation opened on the Ohio, and since that date it has grown to be one of the principal river-ports and commercial cities in the Union. Between 300 and 400 steamers are constantly plying between this city and other points of the river. The principal article of export is pork, and its pork-packing establishments are famous in the Old World as well as in the New. The principal lake-port is Cleveland (160,000). Columbus (52,000), in the centre of the state, is the state capital, and Toledo, on the Maumee, a little above its mouth, is the only other town with a population above 50,000, and has a large grain-trade.

INDIANA, west of Ohio, has in general a slight southerly slope. Almost the only waste lands in this state are sandy tracts in the extreme north-west, succeeded in the south by marsh lands inclosing a number of shallow lakes. In the north-east there are extensive timber-covered areas, and the banks of the streams throughout the state are generally well wooded. Among the agricultural products of the state are sweet-potatoes and wine in the south. Towards the west of the state there is a large bed of coal stretching from Rome on the Ohio to Williamsport on the Wabash, a distance of 150 miles, the average

breadth of the bed being three miles. The product, being easily cut into cubical blocks, is called block-coal, and is highly prized for its peculiar suitability for use in the manufacture of steel and the better kinds of iron. Still further west there exists another coal region. Iron ores also exist in the state, but the ores are principally imported for manufacture. The only large town is Indianopolis (75,000), situated in the centre of the state, of which it is the capital. It was selected as the seat of government in 1820, and has grown rapidly in population. Between 1870 and 1880 the population increased more than 50 per cent.

MICHIGAN is composed of two separate peninsulas lying between the largest of the great lakes. The southern peninsula is the principal seat of wealth and population. In the north there are extensive forests of white pine (*Pinus Strobus*) and deciduous timber trees, further south tracts of open country alternating with oak woods, and in the south-west prairies. The eastern coasts are for the most part high and bluff, while the western are formed by sandy downs. In general the surface is very level and the soil fruitful. The northern peninsula, on the other hand, has for the most part a mountainous surface, and an almost frigid climate and barren soil; but as some compensation for these drawbacks its mineral wealth is remarkable. In the north-west a range of mountains extends along the coast and advances in Keweenaw Point into Lake Superior, and these mountains have received the name of the Mineral Range on account of their wealth in copper, which is found here in large and small masses, quite or nearly pure, with occasional veins richly alloyed with silver (argentiferous galena). The copper deposits of this range are by far the most important in the United States. Among the natural features of this peninsula the most noteworthy perhaps are the "pictured rocks," the name given to wind- and wave-worn sandstones on the shores of Lake Superior. The southern peninsula is an excellent farming region. The forests are being opened up by the lumberer and rapidly settled. In the south and south-west, where the proximity of Lake Michigan so mitigates the severity of the west winds that even the peach thrives admirably, lies the great fruit-belt of the state. In the south wine is a noteworthy product. The constitution of the state forbids, however, all licenses for selling intoxicating liquors. The only large town in the state is Detroit (116,000), so named by the French from the strait (French, *détroit*) on which it stands opposite the Canadian town of Windsor. The capital is Lansing, an insignificant town near the centre of the southern peninsula.

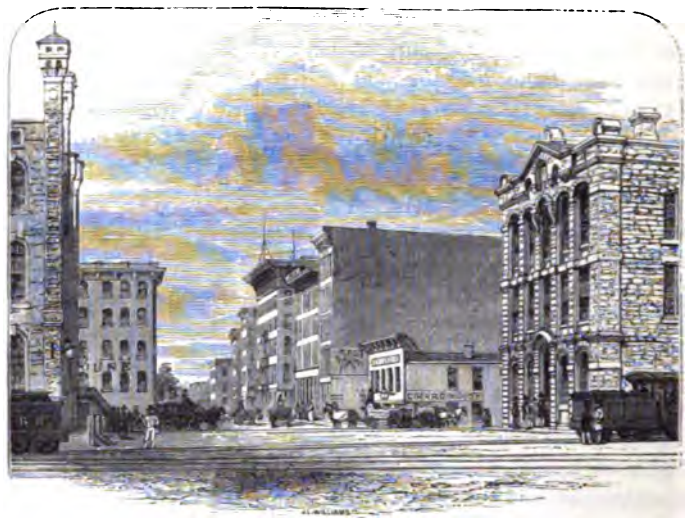
WISCONSIN, immediately to the west of the great lakes, is an elevated rolling country, seldom exceeding 1200 feet in height, covered to a large extent with forests in the north, while the south consists mainly of prairie land. In the extreme north the prevailing forest tree is the sugar maple, and in the adjoining tract to the south the white pine, after which there follow (in the prairie region) numerous groves of oak, chiefly burr-oak. There is an immense number of small lakes containing excellent fish. The rivers are all encumbered by rapids or shifting sands, but afford or may be made to afford a considerable amount of steam navigation. Many of them have deep rocky cañons, here

called *dalles* or *dells*. The southern portion of the state takes a high rank for its agricultural products. The chief specialty of the state under this head is hop-growing, in which it is excelled by New York alone. Fruit also is grown in great abundance, and great numbers of horses are reared. The principal minerals are lead and zinc ores obtained from galena limestone in the south-west, and iron ores (hæmatites and magnetites) found in the north. In the north there are several Indian reservations, chiefly inhabited by Chippewa or Ojibway Indians. There are excellent lake-harbours at Superior on the lake of that name, and on Green Bay, Lake Michigan, as well as at the mouth of the Milwaukee, where the city of Milwaukee (116,000), the most important town in the state, stands. The river can be ascended for two miles by the largest lake-boats, and the amount of shipping that enters and clears at the port is enormous, Milwaukee being probably next after Chicago the most important primary wheat-market in the world. The town has a very peculiar and striking appearance on account of the colour of the bricks of which it is built, and which constitute an important manufacture of the locality. They are of a delicate cream or straw colour and very durable, and are exported in great numbers to other parts of the Union. The capital of the state is the small town of Madison, pleasantly situated between two lakes, Mendota and Monona, the former a beautiful sheet of water, six miles by four, with clean gravelly shores.

ILLINOIS, south of Wisconsin, is mostly a nearly level table-land, from 340 to 800 feet in height, with a gentle slope towards the south. It is the least wooded of all the states yet noticed, about five-sixths of the surface consisting of prairie land. Nevertheless there are in some parts extensive forests (in which as a rule there is a marked deficiency of conifers), and in the prairies there are numerous wooded islands, and there the forests are extending. The climate is in general healthy, but in the south, especially on the Mississippi bottom-lands, marsh fevers prevail in summer and autumn. The state is pre-eminently an agricultural one, and produces all kinds of grain and fruits belonging to the latitude in which it lies; but it is rich also in minerals, though not of the best quality. Three-fourths of its area is occupied by a productive coal-field, but the coal, though abundant and easily accessible, is poor compared with that of Pennsylvania. The iron ores are likewise inferior, and hardly suitable for working except when mixed with others of a better quality. In the north-west the lead- and zinc-bearing galena limestone of Wisconsin is continued into this state.

The most important town in the state, at the last census (1880) the fourth city in the Union in respect of population, if New York and Brooklyn are counted as separate towns, and the third if they are taken together, is Chicago, the growth of which is unparalleled for rapidity even among American towns. The first attempt to form a settlement on its site was made in 1804, when Fort Dearborn was built; in 1831 there were about a dozen families at the place; in 1840, a population of 4479; in 1850, a population of 30,000; in 1860, 109,000; in 1870, 299,000; and in 1880, 503,000. The cause of this astonishingly rapid growth is the favourable situation of the town for receiving the

produce of the west and exporting it by the great lakes. As a primary market for grain, live stock, and lumber, Chicago is unsurpassed by any other centre of commerce in the world. Of grain and flour alone it now receives and exports considerably more than a hundred millions of bushels annually. At one time malarial fevers prevailed to a considerable extent in the town, but the liability to such diseases has been overcome by two measures, one of them of a kind that appears very extraordinary in Europe, namely, the raising of the level of the business part of the town as it stood from a height of about five feet to a height of about fifteen feet above the lake. The other measure referred to was the construction of an excellent system of drainage and sewerage. In October 1871 the business part of the town was destroyed in a great conflagration, but in less than three years it was almost all rebuilt in a much more substantial and imposing style than before. The capital of the state is Springfield (20,000).



A Street in Chicago, Illinois.

SOUTH-EASTERN STATES.

(DELAWARE, MARYLAND, VIRGINIA, WEST VIRGINIA, KENTUCKY, TENNESSEE, NORTH CAROLINA, SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, FLORIDA, LOUISIANA, TEXAS, ARKANSAS.)

This group comprises all the states to the south of Ohio River and east of the Mississippi, besides the three cotton-growing states to the west of the latter river. Its total area is 826,000 square miles, or more than nine times that of Great Britain. In this group, as in the last, the only considerable elevations on the east side of the Mississippi belong to the Appalachian system, which covers more or less of the area of every state in the group on that side except Delaware, Mississippi, and Florida. On the west side of the Mississippi there are hills and mountains in Texas and Arkansas. The rest of the surface consists

of plateaux of moderate elevation and plains. The coasts are generally flat both on the Atlantic and on the Gulf of Mexico. The climate of this region is of course warmer than that of the last, the mean temperature of the year increasing very rapidly southwards. But the extremes of temperature are not so great as in the more northerly group. Severe winters occur only in the north-eastern states of this group and in the more elevated regions, and in summer, although periods of great heat are more prolonged than further north, the thermometer seldom rises above 96° Fahr., while in Pennsylvania and New York it often rises suddenly to 100° or higher, and then falls as suddenly to a temperate summer heat. In the Gulf states west of the Mississippi keen north winds ("northers") blow from time to time from about November to February, usually lasting for about three, but sometimes for four or five days. They always reduce the temperature rapidly by many degrees, and in consequence of their prevalence these states have a lower annual mean temperature than most other localities in the same latitude. The rainfall in the Atlantic states of this region is less equally distributed throughout the year than in the north-eastern states, the proportion of rain falling in summer being greater than at any other period and increasing steadily from north to south. The annual amount of rainfall in the Atlantic states and the states in the valley of the Mississippi west of about 86° E. is considerably greater than in the north-eastern group or the states behind, that is, west of the Alleghanies. At New York the mean annual rainfall is about 32 in., at Savannah in Georgia about 47 in., at Fort Brooke in Florida about 55½ in., and at Natchez in Mississippi about 58 in. In some localities in the Mississippi valley and elsewhere the proximity of swamps makes fevers prevalent and renders the climate particularly unhealthy to strangers, and some of the warmer parts of the region have been found liable to terrible visitations of yellow fever.

The states of the group with which we are now dealing are mostly well wooded, and many species of northern trees pass a long way south into this region, and when they disappear are often replaced by allied species. The change in the character of the vegetation is thus, as already stated, very gradual, and the pine forests, which are found on sandy "barrens" in every state, even to the furthest south, are an obvious sign of the continuity of the vegetation of this group with that of the group of states on the north. At the same time, as might be expected from the difference of latitude and climate, there are many conspicuous trees peculiar to these states worthy of notice on account of their beauty or utility. Among these are the Osage orange, the American olive or devil-wood, the live-oak (highly prized for ship-timber), beautiful magnolias, the tulip-tree (Liriodendron), a tree allied to the magnolia and owing its name to its tulip-like red or yellow flowers, the catalpa with its large leaves and showy white flowers, the sour-leaved sorrel-tree (*Andromeda arborea*), the cabbage and other palms, and the American cypress (*Taxodium distichum*), which generally covers the swamps of this group of states. In the more humid parts of the south the *Tillandsia usneoides* or Spanish moss, an epiphytic plant, affords a fibre largely used by upholsterers, and another southern plant, *Arundinaria macrosperma*, a

tall grass of the bamboo tribe growing chiefly in Louisiana and Texas, furnishes a material for paper-making.

Agriculture also changes its character as we advance southwards. Wheat and maize are largely cultivated in the south as in the north, but products of a warmer climate are here first met with, or are in more general cultivation than in the northern states. Tobacco, which is grown, as we have seen, a good way north in the warmer valleys, becomes in Virginia and Kentucky a product of great importance; still further south, in Carolina, Georgia, Alabama, Mississippi,

Scene on a Cotton Plantation.

Louisiana, Texas, and Arkansas, cotton is a staple, and rice and sugar-cane are cultivated here and there in many of the warmer states. Before the liberation of the slaves all these products were cultivated only in extensive plantations entirely devoted to one or other of them, slave labour being solely employed in the cultivation. The food of the labourers and all the articles of daily consumption (the "supplies") were brought from a distance, and often from an immense distance—from the northern and western states. Since the abolition of slavery, however, the conditions under which these branches of agriculture are carried on have entirely changed, and the planters are only slowly finding out the way to adapt themselves to the change. The Negroes, utterly uneducated and not fitted by their previous training to make proper use of their freedom, show a strong disinclination to work steadily in large gangs, as is

necessary for the working of large plantations; and the planters, from this and other causes, are no longer so well able to meet the loss accruing from a failure of the crop and to allow the prosperity of one year to compensate for the disasters of another. Their difficulties are increased by the fact that the soil has been greatly exhausted by being forced to bear the same crop year after year, and the consequence is that migrations from the old cotton states east of the Mississippi to the new cotton lands west of that river are frequent. To those who remain it is gradually becoming apparent that the old system of plantations must give place to one of mixed culture, according to which every farm must produce the articles of daily consumption required by planter and labourer as well as the crop to which the planter looks for his surplus income, and this system of mixed cultivation is in fact extending in all the old cotton and tobacco states. In the case of rice, however, there is more difficulty, since the production of that crop is said to be impracticable except on large plantations.

The Negro element of the population has proved in another way a hindrance to the recovery of these southern states from the disasters of the war in the course of which the Negroes acquired their freedom. By an amendment of the constitution of the United States made in 1870 it was declared that no state in the Union had the right to debar any person from political rights on account of his colour, and by this amendment the Negroes everywhere acquired the franchise or right of voting for members of the state legislatures as well as members of Congress. In certain states, with the assistance of political adventurers from the north ("carpet-baggers"), often of the most unscrupulous character, the Negroes acquired for a time political control and used it in the manner that might have been expected. In South Carolina, where they held power for several years, the most shameful spoliation was practised. The state debt was recklessly increased, the finances altogether mismanaged, and those in office were enriched at the expense of the state.

Such proceedings have had only one good effect, namely, to convince all observant people in the southern states of the necessity for having the Negroes educated. Before the abolition of slavery hardly any provision was made for this, and the first efforts on behalf of Negro education proceeded from philanthropists in the north, the American Missionary Association taking the lead. But the governments of all the southern states are now themselves alive to the necessity for promoting education. In almost all of them there already exists a system of free public schools with separate schools for coloured children, but in some of the more sparsely inhabited districts the school laws are still very imperfectly carried out. Sometimes they are entirely disregarded, and in other cases active opposition has been shown to the bringing of the law into operation. On the whole, however, the educational outlook is said to be encouraging.

DELAWARE, the north-easternmost of the states of this group, is the smallest state in the Union except Rhode Island, and is almost exactly the size of the English county of Norfolk. In the north it is finely diversified, in the south nearly a dead level with numerous swampy tracts, one of which measures

twelve miles by six, and is covered with cypress, cedar, and other timber trees. The soil and climate in the interior are admirably adapted for the growth of peaches, strawberries, and other kinds of fruit, the cultivation of which has formed of late the leading industry of the state. Manufactures are carried on chiefly at Wilmington and the neighbouring villages, and Wilmington is also the principal port. A ship canal from Delaware Bay to Sassafras River in Maryland has been projected, and at Lewes in the south a fine breakwater, 2589 feet in length, has been constructed by the United States government to afford a harbour of refuge. The only important town in the state is Wilmington (42,000). Dover, the capital, had in 1870 a population under 2000.

MARYLAND lies to the west of Delaware on both sides of Chesapeake Bay, which with the estuary of the Susquehanna River divides the state into two separate sections. Of these the eastern has a surface of much the same character as Delaware, which it adjoins, and has similar products. The portion of the surface contiguous to Chesapeake Bay on the west has also similar physical features, but the northern portion running east and west is traversed by several parallel ridges of the Appalachian system. In the extreme west are many beautiful elevated valleys known as "glades." The Potomac, which forms the southern and western boundary of the state, has much wild and picturesque scenery, especially at Harper's Ferry and the Falls fifteen miles above Washington. It is navigable to Georgetown, District of Columbia, and from that point the navigation is continued by the Chesapeake and Ohio Canal to Cumberland in Maryland. Among the more notable agricultural products of the state are the glades butter and the mountain mutton of the western counties, tobacco in the lower counties west of Chesapeake Bay, and, as in Delaware, fruit in the counties east of the bay. The minerals include semi-bituminous coal from a small but highly important coal-field round Cumberland in the west of the state, some iron and copper, and a great variety of fertilizers. Carbonate of magnesia and Epsom salts have long been manufactured at Baltimore from the magnesite found in the neighbourhood. The oyster-fisheries are the most extensive in the Union. The chief city in Maryland is Baltimore (332,000), which is built on a succession of picturesque eminences on the estuary of the Patapsco River, twelve miles from its entrance into Chesapeake Bay. It has a spacious and secure harbour with a minimum depth of 24 feet, and in recent years it has become one of the leading places of export in the United States, especially for the agricultural products of the west and south. The packing of fruit and oysters are important industries. Among the principal institutions of the town are the richly endowed John Hopkins University, and the Peabody Institute with which are connected an art academy and a conservatory of music. Between the censuses of 1870 and 1880 the population of the town increased by 24 per cent. All other towns, including Annapolis, the capital, are insignificant.

Bounded on one side by the Potomac and inclosed on all others by Maryland is the **District of Columbia**, a tract of 60 square miles in extent, containing Washington, the federal capital of the United States, and not under any state government, but directly under the administration of the general govern-

ment. The site of the seat of the United States government was originally suggested by President Washington, and was actually selected by Congress in 1790, although the government departments did not actually remove there till 1800. The city is built on a very formal plan. The Capitol, or White House, an immense building with a middle portion of freestone painted white surmounted by a dome 285½ feet high, and with two wings of pure white marble, occupies an eminence in the centre, and on two opposite sides of it there is one series of broad parallel streets running east and west distinguished by letters (A Street North, A Street South, &c.), and on the other two sides another series of parallel streets distinguished by numbers. Besides the Capitol there are numerous other magnificent buildings chiefly connected with the government, the principal being the treasury building, the building of the state department, the Patent Office, the president's house, and the United States Naval Observatory. The population of Washington in 1880 was 147,000, an increase of 35 per cent since 1870. Georgetown, separated from Washington by the eastern branch of the Potomac, is also included within the District of Columbia, and like Washington has no distinct municipal government.

VIRGINIA, separated from Maryland by the Potomac, is remarkable for the diversity of its surface. The tidewater valley east of the meridian of Richmond is a low alluvial and diluvial plain, and is succeeded on the west by a triangular area of undulating land of no great elevation terminating in South-west Mountain, both slopes of which range are occupied by a tract known as Piedmont. Blue Ridge, which runs south-west and north-east through the whole state, and has summits rising to from 2500 to 3000 feet in height, begins the mountainous region and forms the eastern boundary of the Valley of Virginia, a strip of rolling country from 1200 to 1600 feet in height, the western boundary of which is formed by the district called Appalachia, where straight lofty ridges often run unbroken for fifty miles or more and have narrow and equally uniform valleys lying between them. The Valley of Virginia and the district in the extreme south-west known as Little Tennessee are of exhaustless fertility. Many of the old tobacco plantations of the state have now given place to forests, but tobacco is still an important product, and the tobacco crop of this state is equalled in amount only by that of Kentucky. Coal exists but is not much wrought. Iron, however, is abundant, and salt is an important product of the south-west. In the mountains there are numerous mineral springs, for the most part amidst exceedingly picturesque scenery, and as the region has a delightful summer climate it is a favourite resort of invalids and holiday-makers. In general no state has such natural advantages for commerce as Virginia. Norfolk has recently become a leading cotton port. Hampton Roads form the finest natural harbour on the Atlantic coast of the United States. Richmond (64,000), the capital of Virginia and the chief town in the state, is situated on the James River, and is an important seat of commerce and shipping, exporting chiefly tobacco and flour. During the civil war it was the capital of the Confederate (seceding) States, and it was taken by the Federal troops after an obstinate siege on the 2nd of April, 1865, only a few days before the close of the war.

WEST VIRGINIA has a large part of its surface mountainous, but the ridges are generally fertile to the top, where there are often splendid natural meadows. The sides of the ridges are generally well wooded, but in some places there are sheer cliffs of sandstone of great height. The state is above all remarkable for its mineral wealth. More than two-thirds of the surface is overlaid by the coal-measures, and even in the districts not so overlaid there are some valuable coal-beds. Petroleum is likewise an important product; salt is obtained in great quantity from natural brines, and among other minerals are glass-sand, flint, fire-clays, kaolin, &c. There are also, as in the adjoining state, numerous mineral springs, and the Blue Sulphur Springs have a very wide reputa-

The Roanoke Valley, part of the Great Valley of Virginia.

tion. Besides minerals timber is a valuable product, a large part of the state being still covered with dense primeval forests. The south-eastern valleys abound in rich blue-grass (*Poa compressa*), on which graze vast numbers of sheep, the wool obtained from which is highly esteemed; and the Panhandle, the northern spur projecting between Ohio and Pennsylvania, is one of the richest agricultural tracts in the United States. Wheeling (31,000), in this district on the Ohio, is the principal seat of commerce and manufactures, and since 1875 has been the capital of the state.

KENTUCKY, separated on the north by the Ohio from Ohio, Indiana, and Illinois, and bounded on the south by Tennessee, is traversed in the east and south-east by a number of steep ranges of mountains inclosing deep and narrow valleys. In this region there are forests of beech and cedar, hemlock, laurel, and holly, and great mineral wealth, but a sparse population. To the westward there lies the beautiful and fertile blue-grass region, famous for its live

stock, and still further west is a region which, within the memory of man, was open prairie-land, but is now well wooded. In the south-west there are cypress swamps. Near the centre of this state there is an area of about 6000 square miles in extent occupied by sub-carboniferous limestone extremely interesting to geologists on account of the number of vast caverns that have been excavated in it by the action of water. The most famous of these, and in fact the most famous cavern in the world is the Mammoth Cave, near the Green River, and not far to the east of the meridian of 86° w. It consists of a succession of chambers on different levels, some of which are traversed by a navigable subterranean river called the Echo, and the length of the whole series is so great that it involves a walk of seven miles to reach the furthest point from the entrance. Some of the halls are of remarkable beauty, but in most cases it is their great size and grandeur that impart the chief interest to the scene. To naturalists an additional element of interest is supplied by the living beings inhabiting the cave, these consisting of a few fish and crustaceans, a crayfish, and some insects, all peculiar species, and some having extremely minute eyes while others are quite blind. As regards productions Kentucky occupies an important place on account of its minerals, live stock, and products of the soil. In coal no state is believed to be richer except Pennsylvania, and in the abundance and richness of its iron ores it is surpassed by no state whatever. The principal coal-field is in the west on the borders of Illinois and Indiana, where block and cannel coal are obtained. The live stock for which the state is principally famous are thoroughbred horses, mules, and swine. The chief agricultural products are maize, hemp, and tobacco. The Ohio River towns are the principal seats of manufacturing industry, which consists chiefly in the smelting and working of iron. Of these towns the most important are Louisville (124,000), connected by a fine bridge nearly a mile in length with Albany and Jeffersonville in Indiana, and the adjacent towns of Covington (in 1870, 25,000) and Newport (in 1870, 15,000), opposite Cincinnati, which is connected with the former by a grand suspension-bridge and with the latter by an iron railway-bridge. The capital is Frankfort, a small place.

TENNESSEE, south of Kentucky, is divided into three portions—Eastern, Middle, and Western Tennessee. The first is mainly mountain country or plateau land, but contains also the beautiful Eastern Tennessee valley. The middle region is a fertile territory, well watered and intersected by numerous ravines, and gradually declining on the north-west to what is known as "The Garden of Tennessee." The western region again is an undulating plain with a deep black mellow soil, terminating in steep well-wooded bluffs overlooking the Mississippi. The Great Cumberland Mount plateau on the west of the Eastern Tennessee valley possesses great mineral wealth. The coal-measures are here very extensively developed, and the coal, which is admirably adapted for iron smelting, is very easily accessible. Iron ore is also abundant, the western iron belt along the Tennessee River containing huge banks of brown hæmatite. The ores are partly worked in the state and partly sent to the iron-smelting towns on the Ohio River. The forest products are also important, and among agricul-

tural products the chief are maize, cotton, and tobacco. The rivers form excellent means of communication. The chief towns are Memphis on the Mississippi, and Nashville in Middle Tennessee, the capital. The former is finely situated on a bluff 60 feet above the high-water mark of the Mississippi, at a point which gives it the command of an enormous trade in cotton and food and other supplies for the cotton and tobacco plantations. The people are passionately fond of public festivities, and every year a "carnival" is held, the pageantry of which is intended to call to mind the ancient Egyptian city after which the town is fancifully named. On several occasions the town has been visited by yellow fever, and the visitation of 1873 was attended by an enormous mortality. The population in 1870 was 40,000, but since that date it is estimated to have gone up in spite of yellow fever to about 60,000. The population of Nashville in 1880 was 43,000. It is in this state that the site chosen for the English colony named Rugby, founded by Thomas Hughes, has been chosen.

NORTH CAROLINA is separated from Tennessee by the Smoky or Iron Mountain range, east of which there are several parallel ranges between it and the Blue Ridge. In the Black Mountains, one of these intervening ranges, the Appalachian system attains its highest elevation. The mountain section contains good maize and grazing land, and the next section to the east grows cotton, tobacco, and sweet-potatoes, besides cereals. The coast lands, from 80 to 100 miles in breadth, form the pine country, and include about three million acres of swamps, in parts of which rice is grown. The coasts are encumbered with shoals, rendering the navigation dangerous. The mountain region and most of the middle section are underlaid by richly metalliferous eozoic strata. The principal metal is gold, which is found in such abundance that a branch mint has been established at Charlotte. Considerable quantities of lumber and naval stores are obtained from the forests, and among the other vegetable products of the state may be mentioned ginseng, snake-root, and other medicinal herbs. The Catawba grape is a native of this state, and so also is the peculiar plant known as Venus's fly-trap (*Dionæa muscipula*). The fisheries (shad, herring or alewives, bass, &c.) are the most important on the South Atlantic coast. The chief towns are Wilmington and Raleigh, the latter the capital. Both have a population under 20,000.

SOUTH CAROLINA corresponds in its physical features with North Carolina, having a mountainous or finely diversified region in the north-west, succeeded first by a region of lower elevation, and then by low and level coast-lands occupied by swamps and pine-forests. Off the coast, especially to the south of Charleston, occur the small islands famous for the production of a fine quality of long-stapled cotton, hence known as sea-island cotton, and well adapted also for the cultivation of rice. These islands are no longer, however, so productive as they once were, their soil having been exhausted by repeated cropping with the same crops. The inland swamps when drained produce great quantities of maize, cotton, and rice, and the salt marshes are capable of being converted into an admirable soil for the growth of long-stapled cotton. The minerals include gold, iron, and other metals, but at present the mineral of greatest importance is

the phosphatic lime-rock of the low-lying river beds near Charleston, from which an excellent fertilizer is obtained. The climate of the pine region is very dry and equable, while the mountain region has a delightful summer climate. The chief ports in the state are Charleston (50,000), Georgetown, and Beaufort, the foreign commerce being almost confined to the first of the three, which has a large export of cotton, as well as of rice, phosphate of lime, naval stores, and lumber. The town is agreeable, the streets being delightfully shaded with trees. It sustained a protracted siege at the hands of the Federals during the civil war. The capital of the state is Columbia.

GEORGIA is another state having the same succession of physical features from the interior to the coast as South and North Carolina, the "sea-islands" of South Carolina being also continued along the coast of this state. Cotton is principally grown in the middle and south-west districts. In 1870 more than half the area of the state was covered with forests, and the lumber business is a very important one, Brunswick, Darien, and Savannah having large exports of forest products. Minerals, especially coal and iron, are abundant in the Lookout Mountains. In the coast region have been found interesting fossil remains of the mylodon, megatherium, and other gigantic species of extinct mammals. The most important town in the state is Savannah, on the river of the same name in the north-east. It occupies a sandy plain, but though the site offers little variety the town itself is well built and agreeably diversified in the interior with numerous small parks and gardens. It has a large export trade in cotton, besides rice, lumber, and naval stores. The capital of the state is Atlanta, a small but thriving town in the hill country in the north-west. The settlement of Georgia was founded in 1733 by Oglethorpe and others as a refuge for oppressed debtors, and named after George II.

ALABAMA, west of Georgia, is entered on the north-east by the southern-most members of the Appalachian system, but these nowhere exceed 1500 feet in height, and in the centre of the state they sink to low hills and finally disappear. The whole of this northern region is extremely picturesque. To the south of it lies the cotton belt, one of the most fertile tracts of cotton land in the world, and here also is the "cane-brake region," where the sugar-cane is abundantly grown. Still further south, in a sparsely populated area, lies the pine-wood region, which produces, however, not only timber, but also honey, wax, rice, and sweet-potatoes. Wheat is an important product in the north and north-east. All parts of the state abound in timber-trees. In the north central region there exists a great coal-field containing bituminous coal, and this mineral is to be found also in other parts of the state. Iron ores of good quality are also abundant and readily accessible, and the Alleghany gold-field has its southern termination here. Mobile (31,000), on the bay of the same name, is the most important town in the state, and takes a high rank among the cotton markets of America. The bay can be safely entered by ships drawing 21 feet of water, and the harbour proper has been improved by the United States government and sufficiently deepened to allow of vessels drawing 13 feet to come up to the wharfs. The capital is Montgomery (in 1870, 11,000).

MISSISSIPPI, west of Alabama, has no considerable eminences. In the north-east the surface is partly woodland and partly prairie, westward of which there stretches a region of river-drift or loess (a deposit of the Mississippi River in the geological period immediately preceding the present). This river-drift region is much broken by water-worn ravines and terminates in high bluffs, known from their product (sugar-cane) as cane-hills, overlooking the Yazoo valley. A large part of this valley is a swampy tract densely timbered bordering on the Mississippi, but wherever the land has been reclaimed by the construction of levees or embankments to protect it from the inundations of the Mississippi the soil is found to be exceedingly productive, and it is deemed probable that, when the whole length of levees required here (about 350 miles) is completed, no region of the United States will be capable of supporting a denser agricultural population than this one. The southern part of the state is an extensive pine-region, through which the Pascagoula and its tributaries afford 1300 miles of water-line, and through which also the Pearl meanders, both streams furnishing abundant water-power to drive the saw-mills in which the timber is prepared for export. At one time this pine-region covered one-third of the state. Timber is not its only product, for it includes large patches of natural pasture, which has earned for it the name of the "cow country." The chief towns are Natchez and Vicksburg on the Mississippi, but the capital is Jackson, a pretty quiet village on the banks of the Pearl. None of these towns has a population reaching 15,000.

FLORIDA, the south-eastern peninsula of the United States, has a remarkably level surface, few hills attaining the height of 200 feet above the sea. Almost the entire area is of post-tertiary origin, being mainly based on coral beds, which, according to Agassiz, have been growing for 50,000 years and are still growing at the present day. Almost all qualities of soil are found in the state, from that of the pine barrens to that of the fertile "hummock" (or slightly elevated) lands, some of which are as productive as any soil in the world. The Gulf hummocks in the west comprise a large extent of land specially adapted for the sugar-cane. Lakes and swamps occupy a large part of the surface, but portions of the swamps have been converted into excellent agricultural land by ditching and draining, and it is believed that the extensive tract in the south known as the Everglades—a tract consisting partly of swamp and partly of patches of grass rising a little above the surface of the swampy areas—might, from its proximity to the sea and the considerable fall of its outlets, very easily be drained and rendered profitable. The chief cultivated products are cotton (both long and short stapled), maize, rice, besides oranges and other sub-tropical fruits and early garden vegetables for the northern markets. The orange crop is enormous and rapidly increasing. Millions upon millions of oranges are annually sent by rail from Florida to all parts of the United States. The natural vegetation is very rich and varied. Forest trees abound everywhere except in some parts of the Everglades, the other swamps being covered with cypress. The climate of Florida is remarkably equable, the thermometer seldom falling so low as 30° Fahr. in winter, or rising as high as 90° in summer. On

this account the state is a favourite health resort for invalids from the northern states. Many thousands regularly make Florida their winter residence, and the number of those doing so is increasing year by year. The capital is the village of Tallahassee, and the largest town, Jacksonville, has only about 7000 inhabitants. Florida was discovered and named by Juan Ponce de Leon in 1512, and belonged to Spain till 1813.

LOUISIANA at the mouth of the Mississippi is altogether a very low-lying state, the most elevated portion, in the north, nowhere exceeding 240 feet above sea-level. The great pine-belt of southern Alabama and Mississippi is continued with interruptions along the south of this state also into Texas, and in general the state is well wooded. In the south-west, however, extensive prairies

Baton Rouge, on the Mississippi, once the State Capital of Louisiana.

and swamps occur, and near the coasts and some of the streams the prairies seem to float on subterranean waters or expanses of thin mud, which causes them to tremble under the feet. A large part of the surface is liable to be overflowed by the Mississippi and other rivers at high water, and it is estimated that for the complete protection of the surface nearly 800 miles of levees would be necessary on the Mississippi itself and upwards of 900 on the other streams. The *bayous* or creeks in the south were all at one time branches of the Mississippi, but have been separated from the river by the construction of these levees. The soil of the state is of inexhaustible fertility. Cotton and maize are the staple crops, but sugar-cane and rice are also of great importance, and Louisiana is said to be the only state where the former product has proved remunerative on a large scale. The rivers are estimated to afford about 2500 miles of navigation.

The principal town in Louisiana and the capital of the state is New Orleans (216,000), on the left bank of the Mississippi, about 100 miles above the delta. It is the greatest cotton-market of the United States, all the cotton of Louisiana itself, most of that of Mississippi state, and a large part of that of Arkansas,

Tennessee, Alabama, and Texas, in all more than one-third of the cotton export of the United States, coming here for shipment. Its commercial prosperity was a good deal injured by the war, by the construction of railways bringing the western states into connection with the Atlantic sea-board, and also by the shoaling up of the mouths of the Mississippi; but since this last obstacle has been removed by erecting jetties, by means of which a depth of 30 feet of water over the bar at the mouth of the river has been obtained, the commerce of the port has begun to revive. The town itself lies a little below the level of the river, in consequence of which the drainage has to be effected by steam-pumps. But in spite of this lowness of situation the town is not as a rule exceptionally unhealthy, though it is subject at intervals to epidemics of fever. Great sanitary improvements have been made by a voluntary association belonging to the town. Levees have been constructed for about 200 miles above the town and 50 below it.

TEXAS, the westernmost of the Gulf States, is the largest state in the Union, and has an area three times as large as that of Great Britain. As regards its surface, climate, and productions it may be divided into three sections: a low and level section in the east, with abundant rainfall, and producing cotton, maize, rice, wine, and other products; a mountainous or rough middle section, dry, healthy, and well adapted for pasture; and an arid barren region where the state borders on Mexico and New Mexico, this region forming part of what is known as the Great Desert of North America. The tract in the north-west known as the Staked Plain (*Llano Estacado*) is an elevated plateau on which water and grass are almost wanting. Its name is due to the stake-like stems of the yucca with which the plateau is dotted. Along the Rio Grande dengue fever is endemic. A considerable portion of the state is well wooded. In the south-east there is the western end of the great pine-belt, and immediately north of that forests of a more varied character. Further to the north, as far west as the Colorado, the surface consists mainly of prairie-land, but with timber belts along the streams, and in the extreme north of the state there is an extensive forest known as the Cross-timbers, stretching into the Indian Territory and consisting mainly of post-oak and black-jack, while further west the mezquite tree (a small gnarled thorny mimosa yielding a kind of gum and edible pods and beans) is widely distributed to the frontiers of the Staked Plain. The coast-lands are everywhere low, and frequently sandy or marshy. In the east they are highly suitable for the growth of sea-island cotton. The wild animals of the state include wild cattle, the bison, and the mustang, the last a small but hardy kind of horse descended from those introduced by the Spaniards. These roam over the pastoral region in enormous herds, which are liable at any moment on a sudden fright to rush off panic-stricken in what is known as a stampede, tearing along furiously, mile after mile (sometimes for thirty or forty miles together) without ever looking back to see what cause there may be for fear. This state is also the home of a species of agricultural ant which tends and reaps a kind of grass and stores the seed. The minerals of the state include coal, in the north and the upper valley of the Colorado, black and brown lignites, lead,

copper, silver, all reported to be abundant and rich. The coal appears to be of good quality but is not worked. Texas was settled by Spaniards early in the eighteenth century, and there are some Spanish Americans in the south-west of the state; but the majority of the white inhabitants are now English-speaking, most of them having either migrated hither from the southern states east of the Mississippi or being descendants of those immigrants. The principal towns are Galveston in the east, which has considerable exports of cotton, hides, horns, &c., and San Antonio on the river of the same name further west. Both have under 20,000 inhabitants. The capital is Austin, a still smaller town on the Colorado River.

ARKANSAS, north of Louisiana, has a varied surface. In the north-east are the Ozark Mountains, and in the west there is hill country towards which the surface gradually rises from the Mississippi. Almost all parts of the state are finely timbered, and in some parts there are dense pine forests of great extent. In the south are numerous prairie tracts. Much of the soil is of unsurpassed fertility, and agriculture forms the leading industry of the state, maize and cotton being, as in Louisiana and Eastern Texas, the principal crops. The minerals include a semi-anthracitic coal, lignite, rich argentiferous galena, and excellent ores of zinc and iron, besides novaculite or hone-stone, the working of which is largely carried on here. The famous medicinal Hot Springs are in Garland county near the middle of the state. The capital is Little Rock, on the Arkansas River, with a population under 20,000.

WESTERN INLAND STATES AND TERRITORIES.

(MISSOURI, KANSAS, NEBRASKA, IOWA, MINNESOTA, DAKOTA, MONTANA, IDAHO, WYOMING, COLORADO, UTAH, NEVADA, ARIZONA, NEW MEXICO, INDIAN TERRITORY.)

This group comprises all the states and territories not yet treated of except those on the Pacific coast. The area embraced by the group amounts in all to about 1,445,000 square miles, which is more than thrice that of the previous group, or about sixteen times the area of Great Britain. The surface is mainly level in the east, but gradually rises in the west to the plateaux of the Rocky Mountains, which occupy the greater part of it. The climate of the region is necessarily various, but the whole region is outside of what may be called the plantation area, where cotton and other products of a warm climate are grown on a great scale. It is a region of cereals and pasture-grasses. In Missouri, the south-easternmost and warmest member of the group, maize is the staple crop, and even tobacco is grown to a considerable extent; but in the other grain-growing states of the group wheat is the principal crop, and Minnesota and Kansas, belonging to this group, are the chief wheat states of the Union. Throughout the region the rainfall is less than elsewhere in the United States, in consequence of which the surface is mainly occupied by treeless prairie land. Even in the eastern members of the group bordering on the Mississippi the rainfall is scantier

than in the states on both sides of that river nearer the Gulf of Mexico; and in the western members, belonging to the Rocky Mountain area, there is a vast region in which the rainfall is so deficient that tillage is almost everywhere dependent on irrigation. This region comprises parts of the Indian Territory, Kansas, and Nebraska, a large part of Dakota, and almost the whole of Montana, Idaho, Wyoming, Colorado, Utah, Nevada, Arizona, and New Mexico, besides a large part of Texas, as well as the eastern parts of Oregon and Washington and the south of California, and is generally known as the Great American Desert. This name, however, is by no means appropriate, for the region is far from being entirely barren. Of the whole area included within it (roughly estimated at 1,400,000 square miles) one portion, amounting to nearly one-fourth, is occupied by mountains, and another portion of about the same extent is absolutely sterile; but the remainder, amounting to more than half the whole area, is richly productive as it is, and is capable to some extent of being made by artificial means still more so. Its present products are chiefly grasses, such as the short buffalo or mezquite grass (*Sesleria dactyloides*), various kinds of grass called grama (Chondrosium and Bouteloua), and the silk-grass or blue-joint (Eriocoma). Even the couch-grass (*Triticum repens*), which in agricultural regions is so pestilent a weed, is here, under the name of bunch-grass, a useful plant. In the west of the group a plant known as white sage or winter-fat is eagerly sought for by cattle, which thrive and fatten on it even in winter. All these products furnish excellent pasture, and the whole area producing them is said to be capable when sufficiently watered of producing likewise excellent crops. Only a small area, however, is capable of irrigation from the rivers of the region, but it has been suggested that a much larger surface might be brought under cultivation by the sinking of artesian wells.

To geologists this arid region is of great interest in more ways than one. During the cretaceous age the whole of it lay at the bottom of a great sea, the boundaries of which are very clearly marked. "The shore line on the east," says Prof. M'Master of Princeton College in a paper published in the *Bulletin of the American Geographical Society* (1880), "extended from about the middle of Arkansas north-westward to near Fort Riley on the Kansas River, ran thence to Omaha and sweeping off to the north-east, passed into the British possessions not far from the head of Lake Superior. To the west the extent of the sea was vast, but the western shore is probably now buried under the waters of the North Pacific Ocean." This marine period was succeeded by another in which the sea bottom had became elevated to a large extent above the surface of the water, and a land area, plentifully sprinkled with large lakes, took the place of the sea. During this second period the region enjoyed a tropical climate in the highest degree favourable to vegetable and animal life, and the fossil remains of that life are scattered over the whole of it in great abundance, but nowhere more abundantly than in the territory of Wyoming, the whole of which, according to Prof. M'Master, "may be said to be a great cemetery of extinct animal remains."

This lake period was followed by a third hardly less interesting in another

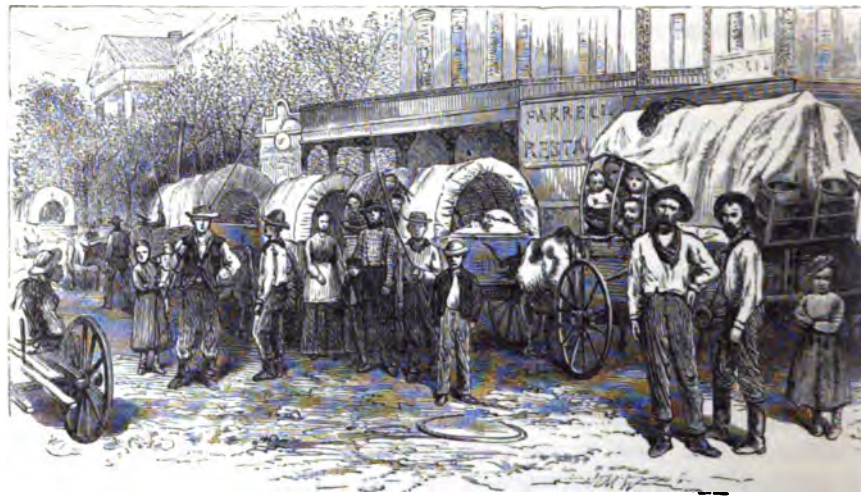
way. The ground rose still higher; the lakes were mostly drained off; the climate assumed its present arid character; and the rivers of the region, fed by the melting of the winter snows on the mountains, commenced a process of vertical denudation which, being continued down to the present day, and being, in consequence of the want of water on the plateaux, unaccompanied by any general lowering of the country bordering the rivers, has resulted in the formation of tremendous chasms or cañons with precipitous sides. The most stupendous example of this kind is the Grand Cañon of the Colorado, which has a length of 300 miles and a depth varying from 3000 to 6000 feet, and which exposes in its course 25,000 feet of rock. All the tributary rivers have cut narrower side cañons, and the whole system has buried itself several thousand feet below the real surface of the country, a country which it has rendered quite impassable except by certain known paths.

MISSOURI, the south-easternmost of the group of states with which we are now dealing, consists mostly of level or gently undulating land, the only rough or hilly portion being the middle section south of the Missouri River. In the south-east of the state there is a marshy and exceedingly fertile and well-timbered piece of country, which sank to its present level in the earthquakes of 1811–12, and has to be protected by levees. In the north-west there are deposits of lœss which furnish a soil of inexhaustible fertility. The great staple of the state, as already mentioned, is maize, and among other important crops sorghum, castor-oil, beans, and tobacco may be specially mentioned. Even cotton is grown on a few favourable spots in the south. The minerals of the state are also of great importance. In the north and centre there is a large coal-field continuous with that of Iowa and Kansas. The hill country again is richly metalliferous, and yields among other metals lead, nickel, zinc, and mountain-like masses of hæmatite and magnetic iron ores. The most important town in the state is St. Louis, the commercial metropolis of the middle Mississippi valley, the centre of one of the best agricultural districts in the country, and the seat of extensive manufactures, especially of flour. It is connected by a great bridge with East St. Louis in Illinois. In the rapidity of its growth St. Louis vies with Chicago. In 1830 the population was 6694; in 1850, 78,000; in 1860, 161,000; in 1870, 311,000; and in 1880, 350,000. Kansas City on the Missouri River in the extreme west of the state occupies the centre of a rich agricultural and mineral district, and has grown from a population of 32,000 in 1870, to one of 56,000 in 1880. St. Joseph, higher up on the Missouri, has a population of 32,000. Jefferson City, with a population under 10,000, is the state capital.

KANSAS, west of Missouri, consists mainly of gently rolling prairie land with a general slope towards the west and north, where the elevation rises to about 4000 feet. The soil throughout a great part of the state is a rich black loam, excellently adapted for wheat, in the production of which Kansas is the rival of Minnesota. Large crops of sorghum are also produced; and wine and fruit are of growing importance among the state products. The fattening of cattle also forms an important business. The climate in winter is often severe, but as in

the rest of the inland states very dry. The snowfall is slight. Coal is the principal mineral, being fairly abundant and readily accessible in the south-east, which belongs to the middle coal-measures. The principal town is Leavenworth (in 1875, 15,000); the capital is Topeka.

NEBRASKA, north of Kansas, closely resembles that state in its superficial features. It is very scantily supplied with timber, but tree-planting has been begun with results that are so far very encouraging. The eastern districts have everywhere a deep and fertile soil well adapted for tillage, but further west there are chiefly pastoral uplands. The chief drawback to agriculture in the arable region is liability to visitations of locusts (*Caloptenus spretus*). Omaha (in



Emigrant Wagons.

1874, 19,000), on the Missouri, is the principal town; Lincoln (10,000) is the capital.

IOWA, east of Nebraska, consists mostly of rolling prairie land. The highest elevation is 1694 feet above sea-level, near Spirit Lake; the lowest 444 feet, at the point where the Mississippi leaves the state. About one-eighth of the surface is estimated to be occupied by natural forests, mostly of hardwood, and the woodland area is said to be extending. There is little absolutely waste land in the state, which furnishes a great variety of agricultural products. No state in the Union is naturally better adapted for the use of agricultural machinery. Among the wild products of the vegetable kingdom belonging to this state is a plant used in tanning, a species of Polygonum. The lower, middle, and upper coal-measures are all found within the borders of the state, the first extending for 175 miles along the Des Moines River, the second to the south-west, and the third along the Nodaway and extending into Kansas and Nebraska, but not producing coal in great abundance. The coals are bituminous, but compared with those of the Alleghany coal-field of inferior value. Lead is obtained from

galena limestone. The principal towns are Davenport (in 1875, 21,000), on the Mississippi, opposite Rock Island, on which there is a United States arsenal; Dubuque (in 1875, 24,000), the centre of the lead region; and Des Moines (in 1875, 16,000), the capital.

MINNESOTA, north of Iowa, is as to its general elevation higher than that state, although the highest point in Iowa is of greater elevation than the highest in Minnesota, that is, than the crest of the plateau west of Lake Superior, which has a height of 1359 feet. The lowest point in the state, where the Mississippi issues from it, is 660 feet above sea-level. The most conspicuous features of the state are the great marshes of the north-east with a small growth of tamarack and fir; the great white-pine belt covering nearly one-third of the state chiefly north-east of the Mississippi; the Big Woods south of Crow Wing River; still further south the richly fertile tract, measuring about 100 miles in length by 40 in breadth, known as the Iowa Line; and in the south, south-east, and south-west rolling country and prairie land. All over the state there are myriads of clear lakes, varying in size from a few acres to hundreds of square miles, many having no outlet. The climate is in winter severe, and in the north intensely cold, but the winter is generally short and the spring and autumn are long and pleasant. Wheat is by far the most important product of the state, spring-wheat succeeding best, and commanding the highest price of all the wheats of the United States on account of the high percentage of flour that it yields. Potatoes of peculiarly excellent quality are also grown in immense quantities, and the oats of this state, unlike the oats grown in most other parts of the United States, furnish good oatmeal. The Indians of this state formerly subsisted on a native cereal—wild rice (*Zizania aquatica*), the straw of which is now used for paper-making. The south-west of the state is liable to visitations of locusts. The most important towns are St. Paul (41,000) on the left bank of the Mississippi, the capital, and Minneapolis (47,000—including St. Anthony now incorporated with it), on the same river higher up, a great flour-milling centre.

DAKOTA, west of Minnesota, has a territorial organization. In the east of the territory there is a long narrow plateau, called the Coteau de Prairies, inclosing a number of salt lakes, and in the middle another plateau, the Coteau du Missouri, with a very stony surface. The land fitted for cultivation is chiefly confined to strips adjoining the Missouri and the tract in the north-east bordering on Manitoba, which is a fine wheat region. In the south-west there is a considerable tract stretching into Nebraska known as the Mauvaises Terres or Bad Lands, a name sometimes applied to the whole of the arid region of the United States. The Mauvaises Terres proper are utterly sterile and covered with grotesquely shaped cretaceous rocks. In the Black Hills, in the south-west of the territory, gold and silver have been found, the latter in such abundance as to have already attracted many adventurers. The capital of the territory is Yankton in the south-east, a village with less than 1000 inhabitants in 1870.

MONTANA, the territory west of Dakota, is in general mountainous, but along the Three Forks of the Mississippi it possesses a considerable stretch of

gently undulating prairie land of the finest agricultural capabilities, and a large part of the surface is well suited for grazing and cattle-rearing. Gold and silver are its chief mineral wealth, but lignite also is abundant and well distributed. Helena, towards the west of the territory, is the capital and chief business centre. In 1870 two-thirds of the population was composed of Indians living in tribes.

IDAHO, the territory lying to the south-west of Montana, is, like that territory, principally mountainous, but has several large prairie tracts. In the south-east there is a region which was apparently volcanic at no very distant date, and which abounds in springs and geysers. The Great Shoshonee Falls on the Snake River, in about 114° w. lon., at high water rival in magnificence those of Niagara, the height of the fall being here greater. Gold and silver are found in nearly all parts of the state, and various other minerals also exist. The population includes a considerable proportion of Indians living in tribes, and also several thousand Chinese. The capital is Boisé City.

WYOMING, the territory lying to the east of southern Idaho, is divided into two sections, one belonging to the Atlantic and one to the Pacific slope, by the main chain of the Rocky Mountains, which runs from south-east to north-west. In southern Wyoming flat-topped hills called *buttes* rising from the plains and valleys form the characteristic feature of the country. These, says Prof. M'Master, "are but the remains, the landmarks, if I may so speak, of the ancient level of the country which the eroding waters have spared, and bear all the sharpness of outline so characteristic of erosion by water. In many of them the sides rise vertically from the plain for 400 or 500 feet, and end at the summit in a broad plane as level as the floor. The sides of others, which have not been capped and protected by layers of sandstone, are weathered and cut into all manner of fantastic shapes, greatly enhanced by the colour of the strata, some green, some white, some yellow, and some dark brown." Gold and silver abound in the territory, and there are also vast beds of iron ore, and an excellent coal of tertiary origin which supplies the Central Pacific Railway with fuel. Cheyenne is the capital, but Laramie is a place of more importance.

In the north-west of this territory (partly in Montana) lies the **Yellowstone Park,** a tract about 65 miles in length and 55 in breadth, famous for its cañons, waterfalls, and geysers, and reserved and withdrawn from settlement by an act of Congress passed in 1872, with the view of setting apart the area "as a public park for the benefit and enjoyment of the people." The Yellowstone Lake, within the "park," is 22 miles in length by 15 in breadth, and about 7800 feet above sea-level.

COLORADO, south of Wyoming, is a state. The western and central portions of its area are occupied by an intricate plexus of wild and irregular ranges inclosing valleys known as "parks," most of which, notwithstanding their elevation, are fertile, well timbered, and of a mild climate. The east of the state again is a vast plain well adapted for pasture. In some parts of the state arable agriculture is carried on by joint-stock companies with the aid of irrigation works. The chief wealth of the state, however, consists in its minerals, principally gold and silver. Great discoveries of the former metal have been made

north of Pike's Peak about the centre of the state, and of both in the south-west. The ores usually contain both metals, and copper also is a frequent admixture. Deposits of coal or lignite are found along the eastern border of the Rocky Mountains. There are some Spanish-speaking inhabitants in the south of the state, and likewise some Indians mostly of the Ute stock. Denver City, the capital, is the emporium of the gold and silver mining districts, and has grown from a population of 4749 in 1870 to one of 36,000 in 1880.

UTAH, a territory, west of Colorado, is divided into two unequal parts by

The Valley of the Babbling Waters, Utah.

the wild and picturesque Wahsatch range. The part west of this range belongs to the area known as Fremont's Basin, described in the general account of North America, and is much diversified by numerous small ranges of mountains, while the eastern portion is rather a region of plateaux than ridges. Great Salt Lake, occupying an area of 2000 square miles in the north-west, is a shallow expanse of strong brine. As in Colorado the principal wealth of the state consists in ores of the precious metals, besides lead, iron, copper, and coal. Nineteen-twentieths of the surface is said to be hopelessly sterile, but in spite of that a large and increasing Mormon population supports itself exclusively by agriculture, making the ground fertile by irrigation. The head of the Mormon organization, a peculiar religious sect professing adherence to Christianity, but on the basis of an alleged new revelation known as the Book of Mormon, and admitting polygamy among its members, long exercised an amount of influence in this

state superior to that of the United States authorities, but of late the influx of a large "Gentile" population, who have come to carry on the mining industries, has weakened the ecclesiastical influence in the territory and increased that of the territorial authorities. Salt Lake City, the capital, was founded in 1847 after the expulsion of the Mormons from Illinois, and had in 1870 a population of 13,000.

NEVADA, a state, west of Utah, belongs almost entirely (all except small areas in the north and south) to Fremont's Basin, and has the same general features as western Utah. It has much good grazing land, however, and interesting experiments have been made in the breeding of Cashmere and Angora goats. Camels and dromedaries also are said to have proved fairly well adapted to the climate. But Nevada is above all things a metalliferous state. For years it has been the leading state in the Union in the production of the precious metals, both gold and silver being very abundant, while California, which produces more gold, produces much less silver, and Colorado, which produces about as much silver, produces much less gold. The famous Comstock lode of silver- and gold-bearing quartz at Virginia City is the most profitable mining deposit in the world, and produces about a third of the whole gold production of the United States. Carson City is the capital, but Virginia City (in 1870, 7000) is the largest town in the state.

ARIZONA, a territory, south-east of Nevada, and south of Utah, is entirely a region of mountains and plateaux intersected by deep cañons, among which is the Grand Cañon of the Colorado. In the mountains of the north-east there is a good growth of timber, chiefly conifers. Elsewhere mezquite, cotton-wood, and other trees are found to a greater or less extent. Irrigation is resorted to in this territory also for agriculture, and with excellent results, and vast tracts of mountain land have proved to be admirably adapted for sheep and cattle rearing. Various minerals, including the precious metals, abound, but the deficiency of water and the difficulties of transportation have generally prevented the profitable working of the mines on a large scale; but it is probable that this branch of industry will be greatly promoted by the completion of the Southern Pacific Railway, which is to cross this state. The state contains numerous Indians of different tribes. The Apaches were once formidable, but are now broken up and allocated on various reserves. The capital is Prescott, a village of about 5000 inhabitants near the centre of the territory.

NEW MEXICO, east of Arizona, has superficial features very similar to those of that territory, and yields the same products mineral and other. Coal, or rather a high grade of lignite, is widely distributed in the territory, and is often found in thick beds. Nine-tenths of the white population are of Mexican origin with a dash of Indian blood. The English-speaking population is mostly mining. Of the Indian tribes the Pueblos are the most numerous. The Navajos manufacture blankets of surprising excellence. The capital is Santa Fé (about 5000).

INDIAN TERRITORY. This region, which, not being organized as a territory, is officially known as the "Indian Country," communicates with New Mexico by a narrow strip in the north-west, which is, however, claimed by

Texas. The north-west of this region is an arid and almost treeless tract sloping gently south-eastwards, and the west generally is very subject to droughts in summer, while the east of the state has for the most part an ample rainfall, a fertile soil, and a delightful climate. Cattle-breeding is an occupation for which the region is particularly well adapted, and it is industriously pursued by the civilized Indians. Of these the official reports enumerate five nations—(1), the Cherokees, occupying five millions of acres in the north and north-east; (2), the Seminoles, with 200,000 acres in the east central district; (3), the Creeks, with 3,215,000 acres in the east; (4), the confederated Choctaws, with 6,700,000 acres in the south-east; and (5), the Chickasaws, with 4,400,000 acres in the south. Each of these nations has its own form of government, that of the Cherokees being a democracy, while the others are governed in patriarchal fashion by chiefs. Among the other tribes, reckoned as uncivilized, are Pawnees, Comanches, Delawares, Kiowas, Cheyennes, and several besides. The more civilized tribes have their own school laws, and in some instances the United States government has provided tribal school funds. Some of the tribes even have newspapers of their own, and a small printed literature, chiefly religious and the work of Protestant missionaries. The Cherokees are perhaps the most civilized of all the nations, and are described as intelligent, temperate, and industrious, taking a pride in the development of their territorial resources, and having excellent schools. There are, however, numerous half-breeds among them, and the nation seems to be becoming more rapidly absorbed than any other by the dominant Anglo-Saxon race.

THE PACIFIC COAST.

This region comprises only the two states of California and Oregon and the territory of Washington, but has an area of 323,000 square miles, or three and a half times that of Great Britain. It is the region traversed longitudinally by those chains of the Rocky Mountains which shut off the region to the east from the climatic influences of the Pacific. One chain under the name of the Coast Range, not generally exceeding 3000 feet in height, passes along the coast from one end of the region to the other, and within that a higher range, having many summits exceeding 14,000 feet, traverses the greater part of the region under the name of Sierra Nevada or Snowy Range in California, and that of Cascade Range in Oregon and Washington. Beyond the inner and higher of these two chains the rains, as we have seen, are very deficient and the extremes of temperature great, while within that chain the rains are ample, the extremes of temperature moderate, and the vegetation correspondingly vigorous. The rainfall is greatest in the northern part of the region, where the annual fall approaches 60 inches, the maximum falling in late autumn and winter, while the summers there are less rainy though dull. In the south of Oregon the summers have very little rain and are generally bright, and in California the summers are absolutely rainless. As regards vegetation we have already seen that the southern part of this region, from about the mouth of the Columbia River, forms

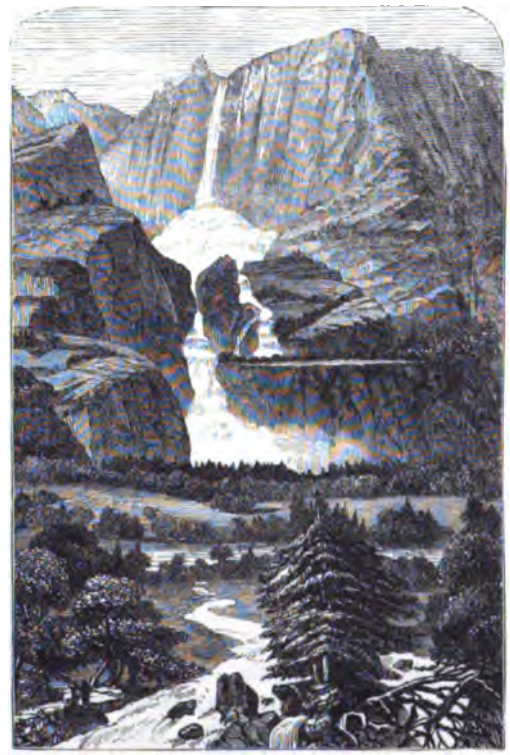
a zone by itself characterized mainly by its magnificent forests of gigantic conifers. The *Sequoia gigantea* or mammoth-tree is certainly not a common species, but its congener, the red-wood (*Sequoia sempervirens*) is much more abundant and forms a valuable timber tree, and the sugar or Lambert's pine is the rival of this latter tree not only in size but commercial value. Besides these trees the forests of this zone contain numerous other species of pine, of which the yellow pine (*Pinus ponderosa*), Sabine's pine (*Pinus sabiniana*), and the Monterey pine (*Pinus insignis*) are the most remarkable; several species of fir, of which the Douglas spruce (*Abies Douglasii*) equals the red-wood and the sugar-pine in magnitude; several cypresses and maples, numerous species of oak, two of which are evergreen, besides a walnut, a kind of chestnut (Castanopsis), planes, ash-trees, &c. Many fine flowering and evergreen shrubs are also peculiar to the district.

The fauna of the whole district west of the inner mountain chain, including the western portion of Washington territory, is likewise distinctive, the birds and the small animals being mostly of a kind unknown in the Eastern States Of the Californian birds the road-runner or ground-cuckoo and the Californian quail may be mentioned as among the most characteristic.

Certain parts of the area included in this coast region, however, lie beyond the mountain ranges to which the peculiar character of the region is due, and these parts accordingly have much the same character as the adjoining region to the east. In California the district in the extreme south-east beyond the southern extremity of the Sierra Nevada is almost quite desert, and the eastern portions of Oregon and Washington are for the most part similar to the contiguous territory of Idaho in surface, climate, and productions. Here, however, one large tract, that lying round Walla Walla on the Upper Columbia, between the Cascade Range and the Blue Mountains, has proved to be admirably adapted for agriculture, and has already attracted a considerable number of agricultural colonists; and it will in all probability attract many more when the Northern Pacific Railway, intended to connect Lake Superior with the west coast, is completed. The soil is of surprising fertility, and the climate delightful, much warmer in summer than west of the mountains, so that maize can be grown and grapes and peaches ripen freely in the open air, though in western Oregon and Washington the summer climate is too cold for these products. The wheat crop here yields more bushels to the acre than it does in Minnesota.

CALIFORNIA. The parallel ranges in this state are linked together by transverse ranges at Tejon Pass in the south and near Mount Shasta in the north so as to inclose the magnificent valley of the Sacramento and San Joaquin, renowned for its beauty and fertility. It is this valley to which the state now principally owes its wealth, and which has made the state famous for its wheat, its wool, its fruits (including sub-tropical fruits in the south) and the produce of its vineyards. The climate is much superior to that of the narrow strip west of the Coast Range, which is damp, foggy, and quite cold even in summer, more particularly in the north, while within the valley the climate is at all times genial and in winter delightful. Rain hardly ever falls after the 15th of April,

so that in summer the ground is parched, but the heat being dry is never oppressive. Irrigation is in many parts necessary for the practice of agriculture, and has been resorted to very extensively. The wheat harvest begins in May, and only the heads of the wheat are gathered, and the absolute rainlessness of the summer enables the thrashing to be done in the field. Cotton is grown in a few places, and the rearing of silk-worms and the growing of tea and coffee have all been tried with success. The principal forage plants of the state are a wild oat (*Avena fatua*), a geraniaceous plant popularly called *pin-grass*, and lucerne, which has been introduced, and is here known by the name of *alfalfa*. The only navigable rivers of the valley are the Sacramento and Joaquin and a few of their larger tributaries. Some of the lakes have no outlet and contain complex alkaline solutions. In the east of the great valley, in the folds of the western slopes of the Sierra Nevada, are many minor valleys remarkable for the grandeur of their scenery, the most celebrated and marvellous of these being the Yosemite valley with its tremendous precipices and waterfalls.



The Yosemite Waterfall.

The mineral resources of California are of almost equal importance with its agricultural resources. The most important of the minerals is gold, which was first discovered in February, 1848, a discovery which brought the first great rush of settlers to this part of the world. So rapid was this influx of gold-seekers that within four years California, which had previously only a trifling population, counted more than a quarter of a million of inhabitants. Gold is said to have been found in the state in strata of almost every geological age, but it is most abundant in the jurassic and triassic fields that skirt the Sierra Nevada. Among other minerals found in the state are silver, quicksilver, copper, coal, &c. The mines of quicksilver (cinnabar) at New Almaden (named after the locality of the great quicksilver mines of Spain) are remarkably rich and important. Coal of tertiary origin is found in Mount Diablo (the southern part of the Coast Range), but is of indifferent quality. The manufactures of the state are rising in importance.

The principal are those of flour, lumber, and woollens. Californian blankets have a reputation for fineness and durability.

At the census of 1870 about 5 per cent of the population was composed of Indians and about 8 per cent of Chinese. At the time of the first inroads of the gold-diggers the Indian population seems to have been much more numerous than it is at present, but their numbers were greatly reduced by the cruelties of which these immigrants were guilty. So great was the destruction of life among them at this period that both Col. Mallery and Major Powell, director of the United States survey of the Rocky Mountains, are of opinion that more Indians have perished by violence in California than in all the rest of North America. The Indians belong to a great number of tribes, and "probably nowhere in America," according to Hubert Bancroft, "is there a greater multiformity of languages and dialects than here." During the decade between the census of 1870 and 1880, the Chinese element increased even more rapidly than the general population of the state, though it was still at the latter date under 9 per cent of the whole. The Chinese are almost all males, and find emplóyment as messengers, laundrymen, railway-labourers, market-gardeners (nearly all the market-gardens of California are in their hands), and in other ways, and are thrifty and industrious, being all eager to amass as quickly as possible as much money as will enable them to return and live in comparative comfort in their own country. By the white population they are generally regarded with the utmost hostility, partly, it is alleged, on account of their filthy and vicious habits, but chiefly on account of the cheapness of their labour, which makes their competition very severely felt by the lower class of labourers. This hostility on the part of the whites has led to the passing by the state legislature and even by Congress of several measures intended to put a check upon this immigration, but these enactments have either been pronounced by the federal court of justice contrary to the constitution or vetoed by the president.

The principal centre of commerce and population is San Francisco, on the western shore of the magnificent inlet which receives the waters of the Sacramento and San Joaquin. It is another of those American towns, which, like Chicago and St. Louis, have grown from nothing to the rank of first-rate cities with extraordinary rapidity. The site was first settled about 1777 by the Spaniards, who gave it the name of Yerba Buena (good pasture), but it was a place of no consequence till 1850, when it was incorporated as a city under its present name. In 1860 it had a population of 57,000; in 1870, 149,000; and in 1880, 234,000. The houses of the town are mostly built of wood on account of the liability to earthquakes, but another danger, that from fire, has led of late to the increasing use of brick and iron for the purpose. The harbour is large, deep, and secure, and has a depth at its entrance (the Golden Gate) of 35 feet. Lines of ocean steamers connect the port with Australia, China, Japan, Panama, Mexico, and other parts of the world. The chief exports are the precious metals, wheat, flour, wine, quicksilver, and wool. The climate is so equably warm that roses bloom all the year round. The capital of the state is Sacramento (in 1870, 16,000) on the river of the same name,

at the head of the navigation for large steamers. It is noted for its beautiful gardens.

OREGON. The most fertile tracts of this state are the valley of the Willamette and the upper basins of the Umpqua and Rogue River west of the Cascade Range, besides the area bordering on Washington, already mentioned in the general account of the Pacific region. The principal products are wheat, wool, flax, and apples. White sage occupies extensive areas in the south. There are important fisheries of salmon on the Columbia and its tributaries, which also afford extensive navigation. Gold is found both east and west of the Cascade Range; silver is obtained in many parts of the state from quartz and galena; and copper and iron are very abundant. At the census of 1880 Chinese formed 5½ per cent of the population. Portland (8000) on the Willamette is the principal town and port, but Salem higher up on the same river is the capital.

WASHINGTON closely resembles Oregon in its physical features and vegetable products, being in the west a densely timbered mountainous country with a few very fertile valleys and prairies, and in the east a rolling expanse partly well suited for agriculture and elsewhere only for pasture. It shares with Oregon the navigation of the Columbia River, which ships can ascend almost to the Cascades, and in Puget Sound and Hood Sound it possesses unsurpassed harbour accommodation. Its principal mineral is a miocene coal or lignite, which furnishes a fuel of good quality and is extensively mined for the San Francisco market. Its salmon fisheries are as important as those of Oregon, and canned and salted salmon are large exports. On the coast there are apparently inexhaustible supplies of herring and other fish, among these others being the oulachon or candle-fish, a small kind of smelt composed so largely of oil that the Indians are in the habit of extemporising candles by running a strip of bark through its body. The chief towns or villages are Walla Walla, and Olympia, the capital.

ALASKA.

Alaska is the name now given to the territory belonging to the United States in the north-west of North America. It consists of a large area on the mainland including a littoral strip stretching down to below the parallel of 55° N., together with a number of islands off the coast and the Aleutian Islands in the north-west stretching in a row towards Asia, off the extremity of the narrow peninsula which is now distinguished by the name of Aliaska. The area of the whole territory is rather more than six times that of Great Britain. The name in the form Aliaska is a corruption of *Al-ey-ek-sa*, "great country," the name given by the islanders to the mainland.

To the south of lat. 65° N. there are high mountain ranges in the territory, the highest being along the coast, where Mount St. Elias and Mount Fairweather both rise to above 14,000 feet. This range terminates with the peninsula of Aliaska, but the Aleutian Isles may be regarded as the peaks of a submarine continuation of the range. The whole range, including these islands, is volcanic.

Further north the Alaska Mountains are formed by the blending of the north-western extremity of the Rocky Mountains with spurs from the Coast Range. The greater part of the surface on the north is a broken hilly plateau. Timber is abundant, the best being that of the yellow cedar. Among other trees the white spruce (which affords strong, light, and durable spars), the balsam fir, and hemlock-spruce are common.

The climate of the territory, owing to the favourable influence of the warm Kuro Sivo current, is much warmer than might be expected from the latitude. That of the Aleutian Isles is much like that of the Scottish Hebrides. At Sitka the winter temperature is about the same as at Washington, District of Columbia.

Sea-otter Hunter's Camp at Saanack, Peninsula of Aliaska.

On the Upper Yukon the summer heat is intense, and barley, potatoes, and turnips have been grown at Fort Yukon in 66° 34′ N.

At present the principal resources of the territory are its furs, mainly derived from the fur seals and sea-otters, the catching of which is placed under restrictions by the United States government. Whale-fisheries are carried on in Behring Sea and the Arctic Ocean, and fish, including cod (*Morrhua americana*), herrings, candle-fish, salmon, &c., are abundant. The minerals known to exist in the territory include coal (chiefly a tertiary lignite of fair quality), gold, silver, copper, and fine garnets. The population is mainly composed of Indians, with Esquimaux in the north, and Aleutians, who appear to belong to the same race as the Esquimaux, on the islands named after them. The capital is Sitka, formerly New Archangel, a station founded by the Russians in 1804. The territory was purchased by the United States from the Russians in 1867.

MEXICO.

Mexico (Spanish, *Mejico*) is a federal republic lying to the south of the United States between the Pacific Ocean and the Gulf of Mexico. It is composed of twenty-seven states, besides the federal district containing the capital, and the territory of Lower California. The names of these states, with their area, population, &c., are given in the following table:—

	Area in sq. miles.	Population.[1]	Pop. per sq. mile.	Capital.	Pop.
NORTHERN STATES.					
Sonora, ...	79,000	110,837	1·4	Ures, ...	8,000
Chihuahua, ...	83,730	191,200	2·3	Chihuahua, ...	12,000
Coahuila and Terra de Sierra Mojada,	50,890	121,895	2·3	Saltillo, ...	20,000
Nuevo Leon, ...	23,630	189,722	8	Monterey, ...	20,000
	237,250	**613,654**	**2·6**		
GULF STATES.					
Tamaulipas, ...	30,225	140,137	4·6	Matamoros, ...	15,000
Vera Cruz, ...	26,225	538,628	20	Vera Cruz, ...	14,000
Tabasco, ...	11,845	104,747	8·8	San Juan Bautista,	8,000
Campeche, ...	25,827	89,481	3·5	Campeche, ...	15,000
Yucatan, ...	29,560	302,315	10	Merida, ...	40,000
	123,682	**1,175,308**	**9·5**		
PACIFIC STATES.					
Sinaloa, ...	36,190	169,231	4·6	Culiacan, ...	12,000
Jalisco, ...	39,164	984,213	25	Guadalajara, ...	80,000
Colima, ...	3,745	65,827	17	Colima, ...	38,000
Michoacan, ...	23,707	661,534	28	Morelia, ...	30,000
Guerrero, ...	24,545	301,243	12	Tixtla, ...	6,000
Oajaca, ...	33,573	728,559	22	Oajaca, ...	26,000
Chiapas, ...	16,042	203,494	12·5	San Cristobal, ...	10,000
	176,966	**3,114,101**	**18**		
CENTRAL STATES.					
Durango, ...	42,500	190,846	4·5	Durango, ...	25,000
Zacatecas, ...	22,992	422,502	19	Zacatecas, ...	20,000
Aguascalientes, ...	2,896	140,430	48	Aguascalientes, ...	32,000
San Luis Potosi, ...	27,495	516,486	19	San Luis Potosi, ...	45,000
Guanajuato, ...	11,409	729,988	64	Guanajuato, ...	64,000
Queretaro, ...	3,205	203,370	63	Queretaro, ...	48,000
Hidalgo, ...	8,158	427,350	52	Pachuca, ...	12,000
Mexico, ...	7,838	696,068	88	Toluca, ...	15,000
Morelos, ...	1,776	159,160	90	Cuernavaca, ...	13,000
Puebla, ...	12,016	783,466	65	Puebla, ...	69,000
Tlascala, ...	1,622	133,498	82	Tlascala, ...	6,000
	141,907	**4,403,164**	**31**		
Federal District, ...	460	351,804	760	Mexico, ...	250,000
Lower California, ...	61,546	28,746	·5	La Paz, ...	5,000
Grand Total, ...	**741,811**	**9,686,777**	**13**		

[1] Derived by the *Almanach de Gotha* from the *Memoria del Ministro de Gobernacion*, 1879.

PHYSICAL FEATURES.—The nucleus of Mexico is formed by a triangular plateau, which has its apex a little to the north of the isthmus of Tehuantepec

and widens out towards the north. In its highest part, which lies towards the southern or narrower end, the elevation exceeds 7000 feet above sea-level. Some of the towns are situated at considerably greater altitudes, such as Zacatecas, 8170; Catorce, 9250; Perote, 7725; Mexico, 7500 feet. Some of the *haciendas* or residences are even 10,000 feet high, and in a few instances carriage roads pass over still more elevated positions. This central plateau may be conceived as bounded by diverging chains of the Cordilleras, but these diverging chains form only the exterior slopes of the plateau, hardly at any point rising into a fringe of mountains, so that the plateau does not present any interruption to the communications. Almost the only summits surmounting the plateau are volcanic peaks, with which it is plentifully dotted, while others rise at its edge and at some points continue the elevated region of the interior to the coast. The principal line of volcanic peaks, including Popocatepetl and Orizaba (17,870 feet), crosses the plateau from east to west in about lat. 19° N. The higher peaks all rise above the limit of perpetual snow. The slopes of the plateau are broken by terraces, and divided by numerous secondary mountain chains into transverse valleys, and beyond these again there is almost everywhere a border of lowlands (along the Gulf coast not more than from thirty to sixty miles broad), these lowlands being sometimes level, sometimes ruffled by the last swellings of the interior plateau. There are two outlying portions of Mexico which have a character of their own, and which differ widely from one another, namely, the peninsulas of Yucatan and Lower California. The broad and comparatively short peninsula of Yucatan is mainly low and level, being traversed in a north-easterly direction by only one low range of hills, while the long and narrow peninsula of Lower California has a plateau-like continuation of the Sierra Nevada, varying from 1000 to nearly 5000 feet in height, running through it from end to end, and leaving only very narrow strips of stony or sandy lowlands adjoining the sea.

The rivers of Mexico, except the Rio Grande del Norte on the north-eastern boundary, and the Rio Grande de Santiago flowing into the Pacific, are insignificant, and in the dry season mostly without water. The lakes are numerous but not important. The largest is Lake Chapala in Jalisco with an area of about 1500 square miles.

CLIMATE.—Nearly one-half of the territory of Mexico lies within the torrid zone, but the surface configuration so modifies the effect of the geographical position of the country that while the towns on the central plateau enjoy a mild temperature those on the eastern and western coasts are exposed to a torrid sun. As in the other tropical countries in the mountainous parts of America, the inhabitants designate the successive climates according to elevation as hot lands (in Spanish *tierras calientes*), here rarely rising higher than 900 feet, temperate lands (*tierras templadas*) occupying the exterior slopes of the plateau to the height of about 5500 feet, and the cold lands (*tierras frias*) mainly within the plateau. The low coast lands are not only hot but humid and unhealthy, while the plateau, especially on the lower levels, has a delightful and healthy climate. An exception to the unhealthy character of the lowlands is presented by the

peninsula of Yucatan, for though the temperature of that peninsula is one of the highest between the tropics, both the air and surface are remarkably dry. Our division of the year into four periods is unknown in Mexico except in the extreme north-west of the mainland, the only distinction elsewhere being into the rainy season, which commences about the middle of May and lasts four months, and the dry season, which comprises the rest of the year. During the rainy season the whole country is exposed to violent rains, which generally fall in the afternoon and on the Gulf coast never fail until the season is over, but in the dry season the rainfall is variable and depends on the locality. In the interior of the plateau the season is absolutely rainless, and the higher parts then become perfectly desolate—naked and dusty. But the outer slopes of the plateau, and even some parts of the coast, are not so entirely free from rain, and this is especially the case on the Gulf coast where the rainfall on these slopes is considerable even during the dry season. It is during that season that the winds called *Nortes* blow, frequently recurring, but at irregular intervals, sometimes lasting only for a few hours, sometimes for weeks, and often blowing with great violence. Though called Nortes (northers) they blow in reality from the north-east, and are in fact trade-winds; and as they blow over a warm sea they come heavily charged with moisture, which, however, on account of the high temperature of the winds, is not precipitated until they come in contact with the colder air on the mountain slopes. The narrow portion of Mexico in the south is very humid, sharing as it does in the moisture of both oceans.

VEGETABLE AND OTHER PRODUCTIONS.—The northern part of Mexico is comparatively bare of timber, but within the tropics Mexico displays a variety and abundance of vegetable products of all kinds not surpassed anywhere. In the coast region, to the height of about 3000 feet the forests are mainly filled with tropical trees, among which mahogany, Brazil-wood, Campeachy-wood, some kinds of ebony, and yellow-wood (Xanthoxylon), besides palms and gigantic ferns are conspicuous. From 3000 feet to about 7800 feet oaks (including evergreen species) predominate both on the slopes of the table-land and on the table-land itself, and still higher up we come to the pine-region. Among the other vegetable productions are maize and other corn, the banana, manioc, tropical fruits, cotton, coffee, sugar, tobacco, indigo, vanilla, cochineal, archil, &c. On the table-land maize and other cereals are the chief food products, but on the coasts the ordinary food of the inhabitants is derived from the banana and the plantain. In Yucatan, where the western section lying between the Gulf coast and the longitudinal range of hills that divides the peninsula is the most productive region, the principal articles of food are maniocs and yams besides bananas. Of vegetable products grown for export almost the only ones of importance till about 1870 were vanilla and cochineal, the vanilla plant and the cochineal-fig (as well as the cochineal insect) being natives of Mexico. But about that year an enormous decline took place from various causes in the production of cochineal in Oajaca (where it was principally produced), and this decline forced the planters to turn their attention to other agricultural industries. Even the government saw the necessity for encouraging different branches of

agriculture from those which had hitherto been too exclusively pursued, and offered a premium for the production of native sugar. The growing not only of sugar, but also of coffee, tobacco, and other products, has in consequence greatly increased in recent years, and is still increasing. On the Pacific side the new plantations are chiefly of sugar, for which there is a favourable market in San Francisco, and on that side these plantations are mostly in the hands of native Mexicans. But on the Atlantic slopes (in Vera Cruz and Oajaca, where formerly vanilla was almost the sole product) there are coffee and tobacco as well as sugar plantations. Many of these plantations are in the hands of foreigners. A sugar-plantation in Vera Cruz yields twice as much as one in Cuba, and the tobacco of the same state is ranked with the finer sorts of Cuba in point of quality. The olive also has received considerable attention, and the oil is of the best quality. Cotton is indigenous to Mexico, and was generally used by the natives before the Spanish conquest. It is not here, as in the United States, an annual, but continues productive for several years, and might be made to yield an important article of export. Another cultivated product of great importance still remains to be mentioned, the maguey or American aloe (*Agave americana*), from the sap of which the favourite drink of all classes (*pulque*) is made, while the leaves supply a fibre used for the same purposes as hemp. The domestic animals are the same as in other parts of North America. The wool of the Mexican sheep is of an inferior quality. Different woollen fabrics are manufactured, some of them of very good quality. The manufacture is chiefly domestic. The silkworm is indigenous in some parts of the country, and the silk produced is of an excellent quality, similar to that of the *Bombyx mori* of China. The cultivation of the mulberry and the breeding of silkworms were introduced by Cortez, but were afterwards prohibited by the mother country. Among the animal products of Mexico may also be mentioned ambergris, which is obtained on the coasts of Yucatan.

Mexican Rancheros, or Small Farmers.

The **minerals** of Mexico are of the first importance, and among these the most important are the precious metals. Of silver the total quantity produced in Mexico between 1521 and 1875 (in value estimated at nearly £686,000,000) is greater than the amount produced in any other part of the world within any

period of which there is a record. The quantity annually produced is still large, and has only recently been exceeded by that produced in the United States. The richest of the mines now worked are those of Real del Monte and Pachuca, between fifty and sixty miles north-east of Mexico, and those in the vicinity of the town of Guanajuato. The gold production is relatively unimportant, the total value for the same period being estimated at somewhat less than £37,000,000. Quite recently, however, gold deposits, said to be of incalculable value, have been discovered in the Sierra Mojada in northern Mexico, and early in 1881 it was reported that the states of Nuevo Leon, Coahuila, and Durango were attracting gold-diggers from all quarters. Among other minerals are quicksilver (mined in Guerrero and Michoacan), copper, iron, sulphur, zinc.

COMMERCE AND COMMUNICATIONS, &c.—The Mexican ports on the Atlantic side are most of them insecure, and many of them are mere roadsteads, while on the western coast there is a series of magnificent ports, from the gulf of Tehuantepec to Guaymas. Yet, owing to the fact that most of the countries with which commercial intercourse can be maintained on the western or Pacific side (Columbia, Peru, Chile, China, India, &c.) produce nearly the same kinds of commodities as Mexico herself, the commerce and shipping of the country are carried on mainly on the east side, while many of the fine ports of the west are scarcely if at all frequented. More than two-thirds of the total foreign trade is carried on with the United States, and the countries next in importance in this respect are France, Germany, and Great Britain. The chief article of export is silver, after which come copper ores, cochineal, indigo, hides, and mahogany and other woods. The principal imports are woven fabrics and other manufactured articles. The trade is almost entirely in the hands of foreigners, mostly Germans.

Of the railways of Mexico the most important is that from Vera Cruz on the Atlantic coast to the city of Mexico on the table-land at the height of 7500 feet. It is 300 miles long, and is considered one of the triumphs of railway engineering. At present an inter-oceanic line is in course of construction across the isthmus of Tehuantepec, from the mouth of the Coaza-coalco to the Upper Lagoon on the Pacific side. The line will be sixty miles in length. The number of letters annually carried by the post-office is equal to about one for every three persons.

The unit of currency is the *dollar*, approximately equal to 4*s*. The principal weights and measures are the old ones of Spain. See SPAIN.

PEOPLE, &c.—The inhabitants of Mexico are composed, as in the other Spanish-American states, of three distinct races—the aboriginal Indians, belonging for the most part, except in the north where numerous tribes roam about, to the Aztec race; the Europeans or white men; and the Africans or Negro race, introduced as slaves by the Europeans. It is difficult at the present day to define the exact limits of either the white or the so-called red race according to purity of blood; but it is quite certain that the latter constitute the great majority of the Mexican population. It is probable that 5,000,000, or rather more than one-half, are Indians, the rest comprising a mixture of the various races, the whites or Creoles numbering only about 500,000, though some make

them twice that number. About half of the Indians are unsettled predatory tribes. The Mexican Indian has the general physical characteristics of the indigenous American. He is well made and muscular, capable of supporting great fatigue, and attains a great age unbroken by infirmities. In ordinary habits he is temperate and simple. His dwelling varies with the climate. In the warm region on the coast the Indian hut, made of canes and palm-leaves, resembles a great bird-cage. Higher up, where timber is abundant and shelter acceptable, it takes the form rather of a Swiss or Swedish log-house; but in the cold region on the table-land it is built of sun-dried bricks, with a well-closed timber roof. In all cases the plan is the simplest possible—a single room, sometimes divided into two by a mat partition. Many Indian families in Oajaca, Mechoacan, and Puebla, have risen to opulence by the cultivation of the agave for pulque, or by rearing the cochineal insect.

Mexican Poblanas (Townswomen).

The Mexican Creole is distinguishable externally from the true Spaniard by his general meagreness and hard features; in character and disposition he varies little from the primitive mould, and still exhibits all the pride, frankness, courtesy and hospitality of his forefathers. Utter indolence and want of energy are said to be characteristic of the whole population. Gambling (especially at the game of cards called *monte*) is the national amusement and the national vice. The Creoles are still the dominant race, but recent travellers report that the Indians are fast gaining ground at their expense. In all the departments of government Indians of pure blood are to be found among the higher officials, and it is said that if Mexico were left to itself it would soon fall into the hands of the original population. The Spanish language is generally spread over Mexico, being understood if not spoken by almost the whole population. Among the Indians no less than fifty-one distinct languages besides sixty-nine dialects are said to be spoken.

Till 1873 Roman Catholicism was the state religion of Mexico, no other being tolerated; but in that year a law was passed which severed the connection between church and state, proclaiming complete liberty of conscience, suppressing the convents, and prohibiting the religious corporations from holding real property. Owing to these measures the Jesuits attempted to incite the people to

revolt, in consequence of which they were expelled from the Mexican territory. The clergy are not well educated, and the great mass of the Mexican population are in a state of deplorable ignorance.

CONSTITUTION AND GOVERNMENT.—Under the government of Spain Mexico was one of the four great viceroyalties of Spanish America. The viceroy was endowed with all the prerogatives of the king. All the higher officers in church and state were Europeans. A system of peculation, beginning with the chiefs, extended through all the offices of government, and a monstrous corruption perverted the whole administration. The colony was not allowed to manufacture any article which could be supplied by the mother country. The whole trade was confined to a single port in Spain, and all foreigners were rigidly excluded. Books were prohibited, schools discouraged or suppressed, and every measure taken to prevent information from being spread among the inhabitants.

The present form of government is that of a federal republic, each member of which manages its own internal concerns. The legislative power is vested in a congress, divided into two chambers—the house of representatives, and a senate. The former is composed of members elected for two years by the citizens of the states, one member for every 80,000 inhabitants. The senate is composed of two senators for each state, elected by the state legislatures. The congress is a high court of impeachment, and its powers are to maintain the union, regulate commerce, promote information, open roads and canals, levy taxes, declare war, approve treaties, &c. The supreme executive power is vested in a president, chosen by the legislatures of the states for four years. He has powers very similar to those of the President of the United States. The council of government exists only during the intervals of the sessions of congress, and is composed of one senator from each state, with the vice-president of the republic at its head. Its duties are to watch over the observance of the federative act and the federal laws, to advise the president, to call out the militia, to approve the nomination of officers, &c. The states are organized in a similar manner, with much the same powers and rights as those of the North American Union.

The revenue of the country is derived to the extent of more than two-thirds from customs duties, levied both on exports and imports. Nearly half the expenditure is on the army. For many years the financial condition of the country has been in utter disorder. The expenditure constantly exceeds the revenue. A considerable debt has been accumulated, but only a small fraction of it is acknowledged by the actual government, and even of that fraction the interest has for years remained unpaid. And this financial disorder is only an index of the general disorder that has long prevailed in the government of the country. No government remains long enough in office or exercises sufficient authority to carry out any important measures to promote the well-being of the people, even if it were honestly minded to do so. The history of the country is an almost unbroken series of *pronunciamientos* or public proclamations against the government, followed by risings and intervals of civil war and anarchy. Such events are at least sufficiently common to give point to the remark attributed to

a Mexican lady, "who always drove out in the afternoon except when there was a revolution." In the south the settled inhabitants are exposed to inroads of the unsettled Indians of Chiapas and Yucatan; in the north the government has been waging for years a war of extermination with the dreaded Apaches and Comanches without ever getting the mastery of them; everywhere robbery and murder are common, and redress is hardly to be looked for, the robbers and assassins often maintaining, it is said, a good understanding with the authorities. Agriculture and industry are consequently completely prostrate, and general misery prevails.

CHIEF TOWNS.[1]—The chief towns of Mexico have all much the same general character. Apart from their situations their attractions are generally confined to the cathedral, often gorgeously decorated externally and internally, the *plaza* or principal square mostly lined with arcades, the *alameda* or public garden, almost always tastefully laid out and adorned with a profusion of the trees, shrubs, and herbaceous plants with splendid flowers proper to a semi-tropical climate, and the *paseo* or shaded promenade. The houses of the better class are built of stone or sun-dried brick. Sometimes they are of two stories, often of one, and built, as in the towns of Andalusia, round an inner court. In all the large towns a considerable section of the population is composed of a class of whom some idea may be derived from the names by which they are designated —*leperos* (lepers), and *pordioseros* (beggars), a class who live from day to day only themselves know how, but who seem to accept their lot with careless gaiety, and are described as showing the skill of virtuosi in the handling of both the mandolin and the knife.

The city of Mexico, the capital of the republic, is said to be the most beautifully built town in Spanish America, but leaves the traveller impressed more by the majesty of the surrounding scenery than by the appearance of the town itself. The regularity and spaciousness of its streets, and the grandeur of the mountains that overlook the plain or table-land on which it lies, give it some resemblance to Turin among European towns. Its cathedral, the most splendid ecclesiastical edifice in America, has an extraordinary richness of ornamentation in gold and silver, and even in diamonds. The mingling of nationalities in Mexico is almost as great as in San Francisco. The bulk of the foreigners are Frenchmen, who are chiefly engaged in manufacturing industries. Next in number are Germans, Italians, Spaniards, Americans, English, Swiss, Austrians, &c. The Germans supply the largest contingent to the most important trading firms of the city. The native Mexicans of position mostly employ themselves neither with commerce nor manufactures, but are mainly bent on acquiring rank and distinction through political commotions. Guadalajara is a large and handsome city, and has a cathedral externally finished in blue and gold. Guanajuato, occupying a site so irregular that one can have no idea of its extent without ascending some eminence that commands a view of the whole, owes its prosperity to the mines of silver and gold in the vicinity. Puebla is so remarkable for the beauty of its situation as to be called by the Spaniards La Puebla da los Angeles, "the city of the angels."

[1] For estimates of population see the table at the beginning.

ANTIQUITIES AND HISTORICAL SKETCH.—The antiquities of Mexico and the adjoining parts of Central America, mainly works of architecture and sculpture, are undoubtedly the most interesting and important monuments of ancient American civilization. Those found within the present limits of Mexico have apparently come down to us chiefly from three tribes, the Toltecs and Aztecs in the central parts of Mexico, and the Mayas in Yucatan, of which they seem to have formed the aboriginal population. Both the other two tribes immigrated into Mexico from the north. The Toltecs appear to have immigrated into the country in the fourth or fifth century of our era, although it was not till the seventh century that they founded the city of Tollan (Tula), and made it the centre of an important kingdom which reached its climax of power

The Great Square and Cathedral, Mexico.

in the eleventh century, but in the same century fell to pieces through war, famine, and pestilence. The Aztecs arrived from the north in the twelfth or thirteenth century, in 1325 founded Tenoch-titlan or the city of Mexico, and at the time of the arrival of the Spaniards (in the sixteenth century) they held sway over a territory which extended from ocean to ocean, and from 18° to 21° N. lat. on the Atlantic side, and from 14° to 19° on the Pacific.

The remains that have come down to us from these tribes have all the same general character, but two periods can be distinguished—an older and more perfect period, and a later period in which the style had degenerated. The remains of this later period all belong to the time of the Aztecs. In some cases the remains consist of isolated ruins of individual buildings or works of sculpture, in others of the ruins of entire towns. Of the latter the most remarkable are the frequently described ruins of Palenque in Chiapas, those of Ocosingo in the same state, those of San Juan de Teotihuacan about 31 miles north-east of Mexico, those of Tusapan and Mapilca in the neighbourhood of Papantla, Vera Cruz, and those at Tehuantepec. The most interesting of these ruins, perhaps, are those of Teotihuacan ("the town of the gods"). In 1880 these were visited

by an exploring party under Désiré Charnay, according to whom no other place in America can show a more imposing mass of ruins. They are the remains of a city estimated to have contained about 27,000 private houses and to have been about 23 miles in circumference, a city which was certainly inhabited if not built by the Toltecs. All the buildings in the town were coated with cement, and this again with finely polished white stucco; and the general aspect of the place, according to Désiré Charnay, quite enables one to understand the description given of it by Torquemada:—

"All these temples and palaces, and all these houses round about were built entirely of white, polished limestone, so that, when one looked at them from a distance, one had infinite pleasure in the prospect. The alleys, streets, and squares were of painted and polished cement, and so beautiful were they, so pure and so brilliant, that it appeared impossible that the hands of mortals should ever have been able to execute it all, and that their feet should ever have dared to tread the ground there.

"And this is so true, that without any exaggeration it may be believed on my report, for besides all that which others have assured me of, I have myself seen different ruins, which bore testimony to all that I have said; and between these temples were trees and flowers, splendid gardens and flower-beds full of fragrance, all for the service and the embellishment of the temples."

Magnificent monuments of antiquity occur also at Uxmal, Jabah, Tuloom, and various other places in Yucatan, at Mitla in Oajaca, and at Cholula in Puebla, all probably of older date than the Aztecs. The prevailing form in these architectural remains is the pyramid, a large number of them being what are known as *teocallis*, which are four-sided truncated pyramids having their sides accurately adjusted to the cardinal points of the compass. They vary in size. At Cholula there is a large one measuring 1773 feet at the base and having a height of 177 feet, surrounded by numerous small ones. Their faces are sometimes unbroken, sometimes divided into stages (at most eight) by terraces or string-courses. The decorations are all straight-lined, but the faces of the buildings are often adorned with sculptures in relief. Many statues have also been preserved. At the time of the Spanish invasion there were also many hieroglyphic manuscripts in existence, but these were almost all ruthlessly destroyed through the fanaticism of the invaders and their missionaries. Of Aztec manuscripts not one appears to have survived, but at least three Maya manuscripts are known to exist. One of these is in the royal library at Dresden, and was published in facsimile at Leipzig in 1880.

In 1521 the dominion of the Aztecs was overthrown by the Spaniards under Cortez, and subsequently Spain extended her authority in this quarter, not only over the whole of what now forms the republic of Mexico, but also over all the territory from Texas to Upper California now belonging to the United States. This territory remained subject to Spain till the present century, but in 1810 a series of revolutionary movements began which terminated in 1824 in the adoption of a republican constitution. In 1835 Texas revolted from the republic and made itself for a time independent, and in 1848 the territory of the republic was

still further reduced by the compulsory cession to the United States of New Mexico (including Arizona) and Upper California. In 1863 the French invaded Mexico and took the capital, and from 1864 to 1867 Maximilian of Austria was upheld as Emperor of Mexico under the patronage of the French. But in the latter year the emperor was assassinated and the republican constitution restored.

CENTRAL AMERICA.

Under this name are included the territory to the south of Mexico occupied by five independent republics, the territory in the south-east of Yucatan known as British Honduras, and the Isthmus of Panama, which belongs politically to the United States of Colombia and will be noticed in the section devoted to that federation. The names, area, population, &c., of the remaining parts of Central America are given in the following table:—

	Area in sq. miles.	Population.	Pop. per sq. mile.	Capital.	Pop.
Guatemala, ...	46,775	1,190,754[1]	25	Guatemala,..	45,000
Honduras,.....	46,520	351,700	8	Tegucigalpa,.....	12,000
San Salvador,.....	7,228	482,422[2]	67	San Salvador,.....	16,000
Nicaragua, ...	51,662	300,000[3]	6	Managua,.....	10,000
Costa Rica,.....	19,985	185,000[3]	9	San José,.....	12,000
British Honduras,..	7,562	24,710[4]	3	Belize,.....	6,600

[1] Result of a rough enumeration in 1872. [2] End of 1878. [3] Estimated. [4] Census of 1871.

The surface of Central America is diversified by three groups of highlands, a northern group occupying Guatemala, San Salvador, and the western portion of Honduras, a middle group occupying the greater part of Honduras and the whole of Nicaragua, and a southern group occupying Costa Rica and continued thence into the Isthmus of Panama. In the northern group a range of mountains of considerable height runs parallel to the west coast, while in the east a series of ranges traverses different plateaux which gradually sink down to the plains of Honduras. The separation between the northern and middle group is formed by a relative depression, varying from about five to fifteen miles in breadth, stretching north and south right across the land from ocean to ocean between the mouth of the Humuya and the Gulf of Fonseca. Right in the middle of this depression or plain stands the town of Comayagua, from which the plain takes its name. The second highland region is far from having been thoroughly explored, but appears to be mountainous only in the north-west (in Honduras), while in the south-east (in Nicaragua) the surface seems to present only a series of plateaux. The third highland region is separated from the middle one by the Lake of Nicaragua and the valley of the San Juan, which together form a still deeper depression than that which divides the first two.

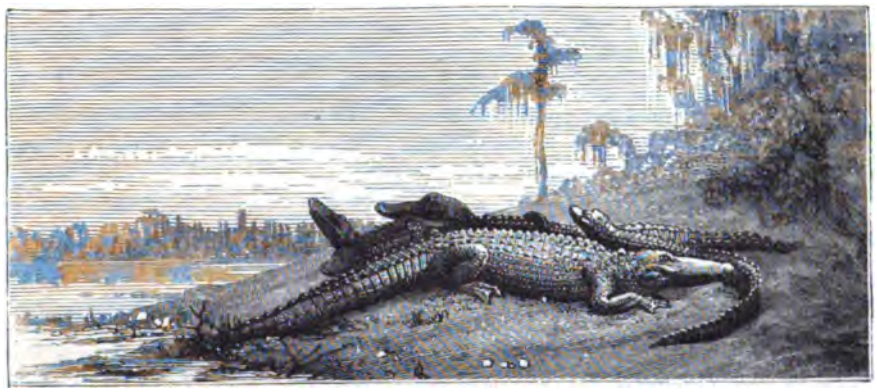
This region, like the middle one, consists chiefly of elevated plateaux, and it embraces in the south the whole of Veragua belonging to the Isthmus of Panama. The whole region is traversed by a high mountain range. The mean elevation of the mountain ranges of Central America is about 6500 feet, but at some parts they rise to a height about one-half greater. As in Mexico, however, the highest summits are active volcanoes, which in Costa Rica rise from the plateaux, in Nicaragua and Salvador from the plains on the west coast, and in Guatemala (where they are more thickly crowded together than in any other part of the world except Java) from the very edge of the main mountain chain. Several of these volcanoes exceed 13,000 feet in height, and the Volcan de Agua near the town of Guatemala almost reaches the height of 14,500 feet. The rivers of Central America are numerous. Those on the west coast are generally extremely short and not navigable, but those on the east side are of greater consequence, and though they are in fact little used, might afford excellent means of communication. The principal lake is the Lake of Nicaragua.

Throughout Central America the rainfall is abundant, but as in other tropical countries a rainy alternates with a dry season, the former generally lasting from June to December. As in Mexico the distinction between these two seasons is sharper on the west coast than on the east, and sharper on the plateaux than either. In the south the rains are heavier and extend over a longer period than in the north, and on the north-east coast of Costa Rica one can scarcely speak of a dry season at all. As to temperature there is the same division into hot, temperate, and cold zones according to elevation as in Mexico; only in Central America the warmer zones rise higher. The hot zone, where tropical products can be cultivated in plantations, rises in the latter region to upwards of 3000 feet, while the temperate zone, in which forests gradually give place to savannahs, attains the height of nearly 6000 feet. Here the chief product is coffee, in the lower parts sugar, and the chief cereal maize. Still higher up wheat and other European products are grown.

Corresponding with the superior humidity of the east coast there is a much more vigorous development of vegetation on that side of Central America. The greater part of the surface is there covered with the most valuable timber and dye-woods,—mahogany, rose-wood, Brazil-wood, a kind of cedar, the silk-cotton tree (Bombax), log-wood, &c. Palms are numerous, among them being the cabbage-palm (*Oreodoxa oleracea*) and the coco-nut palm, the latter being the most abundant of all. Besides timber and dye-woods the forests produce also drugs and spices, the most valuable of which are ipecacuanha, sarsaparilla, obtained from a climbing shrub, and vanilla, obtained from a climbing orchid. On the west side a long strip of coast in the north produces the so-called balsam of Peru, and is hence known as the Costa de Balsamo. In addition to food products, which are the same as in Mexico, the principal objects of cultivation in Central America are indigo, the best in the world, grown chiefly in San Salvador; cochineal, produced only in Guatemala, the southern republics having too moist a climate for its production; coffee, principally cultivated in Costa Rica and Guatemala; cacao, of excellent quality, grown along the whole of the

west coast; tobacco, not inferior to that of Cuba, grown most largely in Honduras, Guatemala, and San Salvador; sugar, the production of which, however, is on the decline. All these are articles of export, and besides these cotton is grown in Guatemala and other states, but not in sufficient quantity for export. Almost everywhere, but more especially in Honduras and Nicaragua, cattle-rearing is a more important occupation than agriculture in the narrower sense of the term.

As already mentioned in the general account of North America the fauna of Central America is on the whole more closely allied to that of the adjoining parts of South America than to that of the northern half of the New World; but while there are apes and other animals reminding us of South America, there are



Alligators.

also many pretty squirrels to remind us of North America. There are many amphibia in the region, among them the iguana and the bull-frog; in the marshy hollows alligators and large turtles are to be met with, and there are venomous as well as harmless serpents. But the most characteristic section of the fauna of Central America is that of the birds. For splendour of plumage the birds which swarm in the forests of this part of the world are nowhere surpassed. Parrots and pigeons are there in great variety, and also peacocks, curassows, toucans, and humming-birds, but the most splendid of all are the various species of trogon, and more particularly the *quetzal* or *curucui*, a bird from the feathers of which the ancient Mexicans used to weave pictures like those executed in Gobelin tapestry. Its wings and back are of a splendid emerald green, in some lights with a blue gloss, in others with a shimmer of gold, its belly fire-red, and it has tail feathers a yard long. In the towns the Californian vulture (*Cathartes*) is just as necessary as a scavenger as the adjutant crane is in some parts of India. The whole region is infested by insect vermin, among which are a species of locust which sometimes commits dreadful ravages, and the kind of flea called nigua or chigoe, which often causes great pain by burrowing under the skin of the toes and laying its eggs there.

The minerals of the region include gold and silver in tolerable quantity, and

the former is mined in the eastern parts of Honduras and Nicaragua, the latter in Nicaragua and San Salvador. Lead, iron, and copper also exist, and coal, apparently of tertiary origin, is found in many parts. Mineral oils have been discovered in Guatemala on the banks of Lakes Vincente and Lampara. In general mining has but little attention paid to it.

The commerce of Central America is mainly carried on with the United States and Great Britain. The only good harbour on the Atlantic coast is that of Belize in British Honduras. That of Greytown or San Juan del Norte is so silted up that it can now admit only vessels of small size. The northern part of the Pacific coast is equally ill furnished with harbours and is besides exposed to a violent surf, but there are many good harbours in the Gulf of Fonseca and the parts of the coast stretching further southwards. No railway yet exists across that part of Central America occupied by the five republics, but one intended to cross Costa Rica has been measured, and others have been proposed. The depression of the San Juan River and Lake Nicaragua was one of the localities recommended for the interoceanic canal by which it is now proposed to connect the Atlantic and Pacific Oceans in this part of the world, and was strongly advocated by some on account of the lowness of the land here. Throughout Central America the system of money, weights, and measures is generally the same as that in use in Mexico, but in San Salvador the *peso* or *piastre* of the approximate value of 4*s.* 3½*d.* is used as well as the dollar of the approximate value of 4*s.*

The population of Central America is most thickly congregated in the west. It is composed of whites, Indians, people of mixed white and Indian race, and Negroes. In the republics the whites are almost without exception Spanish Creoles; but those of pure blood are not numerous, forming at most a twentieth of the whole population. Nevertheless they are still everywhere dominant. The Indians of pure blood form more than half of the population, and another large section consists of Indians of mixed race (*ladinos*), who in some parts regard themselves as Creoles. The Indians mostly belong to one stem, and speak dialects of the Maya language. The Negroes, who are all free, are not numerous.

Central America was subjugated by Pedro de Alvaredo, a general acting under Cortez, in 1524. The conquerors found the eastern parts of the region inhabited only by rude hunting tribes, while in the west there dwelt much more highly civilized tribes, the Quiches in Guatemala having attained a stage of civilization almost as high as that of the Aztecs in Mexico. These tribes, however, were not united as in Mexico in one powerful kingdom, and were accordingly unable to offer any strong resistance to the invaders. Nowhere, in fact, did the natives submit more easily to the Spanish yoke, or adopt the religion of the conquerors (which was preached here by the noble-minded Las Casas) with greater readiness. While the connection with Spain subsisted the government of the Central American provinces was organized in much the same way as in Mexico. All the provinces were subject to the *audiencia* or supreme tribunal of Guatemala, and to one captain-general, but there was also

a separate governor for each of the five provinces. The provinces broke away from Spain in 1821, and from 1823 to 1839 they formed a confederation under the name of the United States of Central America, but since the latter year they have existed as independent republics. Since the separation from Spain the provinces have retrograded in many ways. The old Spanish aristocracy has been annihilated, and the government has for the most part got into the hands of members of the military profession, who carry it on with despotic caprice, or into those of a sort of plutocracy. The church has been deprived of its

A Tropic Beach.

influence and impoverished in every state except San Salvador, and in this one state in which the clergy still retain a great amount of influence that influence is said to be nearly all for bad.

GUATEMALA, the northernmost of the Central American states, has an area about equal to that of Pennsylvania, or more than half that of Great Britain. The northern portion of it from the Rio de la Pasion is almost entirely unknown, but so far as it is known the state contains very little low-lying land. On the table-lands the climate is mild, and said greatly to resemble that of Valencia in Spain. Of the exports of the state by far the most important is coffee, which is cultivated from an elevation of about 2600 to about 5000 feet. Next in value, though at an immense distance, are cochineal, hides, and sugar. Indigo and cacao are also grown, and caoutchouc is obtained. The commerce of Punta Arenas, the port of San José on the Pacific coast, is constantly increasing, steamers of the

Pacific Mail Steamship Company calling here several times a month. A small portion of the first railway in the state, a railway starting at San José ultimately intended to be continued to the capital and San Tomas, was opened in July, 1879. At the time of the last rough enumeration of the inhabitants, more than two-thirds of the population was found to be of pure Indian race, and the remainder were whites or people of mixed race, the whites of pure blood probably forming only a small portion. The most important of the Indian tribes is that of the Quiches, a tribe which has, however, like the other civilized tribes of Spanish America, sunk under Spanish dominion far below the stage of civilization it occupied at the time of the conquest. Interesting remains of a ruined city of that tribe exist at a place called Santa Cruz del Quiche, east-north-east of Quesaltenango. Their language is still spoken over a large part of the land. Some old Indian princely families (*caciques*) are still held in great respect, and exercise a great influence over the Indian population. In the towns of Guatemala beggars swarm as thickly as in those of Mexico, and present as pitiable objects to the sight, their feet being often dreadfully eaten by the niguas. Public charity supports them all; a beggar, it is said, is never turned away in Guatemala without a dole. Some attention is now being paid in this state to education, the confiscated property of the religious corporations having been in part devoted to that object. The first institution for the higher education of girls in Central America has been founded in the capital of this state. The present constitution of Guatemala was proclaimed on the 2nd of October, 1859. By its terms the legislative power is vested in a congress of two chambers called respectively the council of state and the house of representatives. Guatemala, the capital of the state of the same name, stands on a broad plateau at the height of 4960 feet above sea-level. It is supplied with water by long aqueducts on arches. It is the second capital of the name which the state has had, the first, distinguished as Guatemala la Antigua (Old Guatemala), having been destroyed by an earthquake in 1873. The latter town lies about 24 miles west-south-west of the new Guatemala, and having been rebuilt since its destruction is again a place of some importance, its population being estimated at 15,000. The site of New Guatemala is itself subject to earthquakes, on which account the houses are all of only one story.

HONDURAS, east of Guatemala, is a state of about the same size. It is to a large extent still unknown, although so much is certain, that the surface is very varied, the soil, wherever the land is known, very fruitful, and the state generally very rich in timber and minerals. The climate in the interior is healthy, but on the coasts deposits of mud acted on by a tropical sun, often with a temperature of 120° Fahr., produce miasma, clouds of mosquitoes, and sand-flies, and almost every other description of annoying insects. The resources of the state are very inadequately developed. The principal products for export are gold and silver, indigo, timber, cattle, and hides. The commercial intercourse is mainly with Great Britain. The principal ports are Trujillo on the Caribbean Sea, and San Lorenzo on the Gulf of Fonseca. In this state also there are some interesting remains of the Quiches. They lie at Copan near the Guatemala frontier, about

30 miles east of Chiquimula, and extend for two miles along the river Copan. Among them are the walls of a supposed temple 624 feet in length, and the remains of many pyramidal structures. To this state now belong the Bay Islands off the north coast, but the inhabitants are said to be so dissatisfied with the government of Honduras that they are desirous of transferring themselves in a body to British Honduras, to which the islands were at one time attached. The constitution of the state dates from 1865. It vests the legislative authority in a congress of two houses, a senate and a chamber of deputies, and the executive in a president, who should be elected once every four years. In recent years, however, no president has been elected, and no president has ever held office for the full term. The finances are in utter disorder, a consequence of repeated foreign and civil wars. The interest on the debt is never paid. Tegucigalpa, the capital, is situated in the neighbourhood of gold, silver, and copper mines, and is the only town of any importance in the state.

SAN SALVADOR, south of Honduras, is the smallest but the most thickly populated of all the South American republics. Its general appearance differs considerably from that of either of the two adjoining republics, and more especially Guatemala, the wild precipitous mountains and rocks of which present a striking contrast to the green undulating hills of its smaller neighbour. It differs from all the other Central American republics in another respect also, namely in this, that the native population is here more inclined than in any of the others to civilized pursuits. They practise agriculture to a larger extent than in the neighbouring states, and carry on various branches of manufacture, as well as mining. The principal agricultural products are indigo and coffee, and next after these tobacco and raw sugar, and among other vegetable, though not strictly agricultural products, the balsam of Peru has an important place, the Costa de Balsamo belonging to this state. Excellent coal and iron ores exist in the state in the basin of the Rio Lempa, and are worked for home consumption, although the difficulties of transport prevent their being exported. Great Britain has the largest share of the commerce. Indians of pure blood or of mixed Indian and white origin form the great bulk of the population, the pure whites being estimated at only about 10,000. School attendance has been declared compulsory on all children. The present constitution was first proclaimed in 1864, but has frequently been modified. The legislature is of two houses, half the members of each of which are elected ever year. The town of San Salvador, the capital of the republic, has repeatedly been destroyed by earthquakes. It has existed on its present site only since 1854, when the town of the same name on another site was almost totally destroyed by an earthquake on the 16th of April. The present town was itself partly destroyed in 1873 by a series of earthquakes and simultaneous eruptions of the volcano of Tzalco.

NICARAGUA, which stretches from coast to coast to the south of Honduras, may be divided into three regions, the Atlantic region known as the Mosquito Coast or Mosquitia in the east, extending inwards to the range of mountains forming the watershed of the state, a region of savannah-clad highlands to the west of that, and finally the lake district on the Pacific coast. The first region

is very thinly inhabited, containing only a few thousand Mosquito Indians, who claim to be independent, and have their own king and their own flag. The principal products of the region (besides the food of the people) are caoutchouc and mahogany, Brazil-wood and other timbers. The caoutchouc is not obtained from the trees which yield it in such abundance in South America, but from a tree (*Castelloa elastica*) belonging to the bread-fruit family. The principal occupation of the inhabitants of the next region is the rearing of cattle, horses, and mules in a rude fashion, and it is to this region that the bulk of the population belongs. The third region produces the same tropical products as grow in the other republics, but contains only a small area of land. It has, on the other hand, two large lakes, Lake Managua and Lake Nicaragua connected by the River Tipitapa, the former about 40 and the latter about 110 miles long. Lake Nicaragua, the lower of the two, has its surface at the height of about 120 feet above sea-level, and is drained into the Atlantic by the river San Juan. From the Pacific it is separated by a line of active volcanoes, and its surface is dotted with a number of islands of volcanic origin, some of them inhabited. The constitution of Nicaragua, proclaimed in 1858, vests the legislative authority in a congress of two chambers, a senate and a house of representatives. Both are elected by universal suffrage, the former for six and the latter for four years. Managua, on the south-west shore of the lake of the same name, is the capital but not the most important town of the republic. The most important town is Leon (25,000) on the Pacific coast, which has a massive cathedral and is the seat of a university. Next in size is Granada (15,000) on the north-western shore of Lake Nicaragua, a town celebrated for its manufactures of gold-wire chains. The principal port is Grey Town or San Juan del Norte.

A Lonely Landing Place.

COSTA RICA, the southernmost of the Central American republics, consists

of a series of terraced plateaux rising up from both the Atlantic and Pacific coasts to a chain of mountains, which traverses the state longitudinally, and throws off on both sides a number of transverse ridges which divide the plateaux into sections, and inclose on the coasts, especially on the Pacific side, a number of picturesque valleys. The republic probably owes its name, meaning "Rich Coast," not only to the fertility of its soil but also to the gold, which was early discovered here, and which exists in several parts of the state, although the deposits are now neglected. To judge from the value of the commercial products of Costa Rica the republic belies its name, but a much more satisfactory evidence of wealth is given by the general diffusion of such comforts as suffice to meet the wants of an imperfectly civilized tropical people. Unlike what is found in Guatemala and Mexico no beggars are to be seen in this state. Photographs of two or three beggars once to be seen here are said to be shown as curiosities. All the inhabitants of the thinly peopled area have a small piece of land of their own, and their industry is sufficient, under the very favourable conditions of soil and climate which they enjoy, to ensure an ample return to meet all their wants. In some other respects also the inhabitants of Costa Rica contrast favourably with the inhabitants of others of the Central American republics. The poorer classes especially are said to be distinguished by an amiable politeness and readiness to oblige even strangers, being in this the very reverse of the inhabitants of Guatemala. Further, the lower classes get credit for this also, that they do not meddle much with politics, but attend to their cattle and their coffee plantations. But this picture is not without its shadows. The criminal statistics have been declared by the minister of justice to be of so unfavourable a character, that it is necessary, for the honour of the state, not to publish them, a precaution which is, however, of very little effect, seeing that the honour of the state has already been sadly tarnished by the fact that Costa Rica has followed the example of several other American republics in ignoring the obligations arising out of its foreign debt. In their outward appearance the inhabitants of Costa Rica show few signs of Indian origin. Their complexion is remarkably white, and it requires a very close examination to detect traces of Indian features. The commerce of the republic is mainly with Great Britain, and coffee is by far the most important, indeed almost the sole export. The principal ports are Limon on the Atlantic, and Punta Arenas on the Pacific. Colonists are much wanted for the proper development of the resources of the state, and several hundred labourers have been brought from the Canaries by the Costa Rican government to work on the cotton plantations. The constitution, dating from 1871, vests the legislative authority in a congress of one chamber, chosen in electoral assemblies, the members of which are returned by universal suffrage. The members of congress are elected for four years, one-half retiring every second year. The executive is in the hands of a president assisted by two vice-presidents. On the 19th of May, 1879, San José, the capital of Costa Rica, was visited by an earthquake, which destroyed the cathedral and the most important public buildings.

BRITISH HONDURAS is a British crown colony north-east of Guatemala and south-east of Yucatan. The country north of the Belize River, which

divides the colony into two nearly equal parts, is low and level; towards the shore, swampy, and interspersed with several lakes. East of the New River, however, is a range of hills stretching north-east to south-west and joining on to the mountains of Guatemala. South of the Belize River the country, though also swampy on the coast, rises inland much more rapidly, and may be generally described as mountainous. The climate, especially during the wet season, is considered by some more healthy than any of the West India Islands; though the low swampy northern portions can scarcely fail to exhale pestilential vapours. The mean annual temperature is 80°, though the heat is seldom oppressive, except from April to June. The principal natural products are the dye-woods and timbers obtained in other parts of Central America. The cultivable portion of the soil is extremely fertile, but the only important cultivated products are sugar and tropical fruits, the latter being grown in greater and greater abundance for the United States market, where the demand is unlimited. Excellent coffee can be grown, but coffee-growing has not yet risen to be an industry of any importance. According to the land-law which came into operation in September 1879, land in country districts can be purchased at one dollar an acre, and leased for cultivation in large blocks at 10 cents an acre.

The government is administered by a lieutenant-governor (subordinate to the governor of Jamaica), assisted by an executive council appointed by the crown, and a legislative council of five official and not less than four nominated members. Honduras was transferred by Spain to England by treaty in 1670, but at different times its occupation was contested by the Spaniards till 1783, since which period it has remained quietly in the possession of Great Britain. The population is composed chiefly of Negroes, who were first brought to the country as slaves. With exception of a few Caribs, who have fled into it as a place of refuge, there appear to be no native tribes in the territory. The white population numbers only a few hundreds. The capital is Belize or Balize, in which all the trade of the colony is centred.

THE WEST INDIES.

The West Indies are a group of islands which sweep round in a curve from the neighbourhood of the peninsulas of Florida and Yucatan to opposite the mouths of the Orinoco, and include also a few islands belonging to the Dutch off the north coast of Venezuela. The islands belonging to Venezuela on the same coast are not usually considered as belonging to the group. They are subdivided into the smaller groups of the Bahamas or Lucayas, the Greater Antilles, the Virgin Islands, the Lesser Antilles, and the Coast Islands. Another subdivision of the group, namely, into Windward and Leeward Islands (so-called with reference to the trade-winds) is used, but with great variability. According to one usage the distinction is nearly the same as that between Greater and

Lesser Antilles, the former being the Leeward Islands, and the latter with the Virgin Islands the Windward; according to another (originally Spanish but now adopted by many geographers), the Leeward Islands are those along the coast of Venezuela and the Windward the same as before; and according to the (apparently arbitrary) usage of the British Colonial authorities the Leeward Islands include all the British Islands from the Virgin Islands to Dominica, and the Windward Islands all those to the south of Martinique. The following table gives the principal statistical information regarding the most important of the individual islands and the aggregates of smaller islands, the second column of figures giving, as in the corresponding table of the Eastern Archipelago, the fraction expressing roughly the proportion of the area of each of the larger islands to the total area of Great Britain (in round numbers 90,000 square miles), and the third indicating similarly by a multiple or fraction the proportion of the area of the smaller islands and island groups to that of the isle of Anglesey (in round numbers 300 square miles). In both cases the sign + intimates that the area is somewhat greater, and the sign − that it is somewhat less than the figure represents:—

Group.	Island.	Area in Eng. sq. m.	Proportion to Gt. Britain.	Proportion to Anglesey.	Pop.	Pop. per sq. mile.
Bahamas, ...	... ...	5,611		19 −	43,900	8
Greater Antilles, ...	Cuba,[1]	45,890	½ +		1,400,000	30½
	Hayti,[1]	29,828	⅓		800,000	27
	Jamaica and Cayman Isls.	4,418		14½	510,000	115
	Porto Rico, ...	3,530		12 −	658,000	186
Virgin Islands,	... ...	268		1 −	47,500	177
Lesser Antilles, ...	Guadeloupe, ...	620		2 +	127,600	206
	Dominica, ...	290		1 −	27,180	93
	Martinique, ...	380		1⅕	161,800	425
	St. Lucia, ...	237		¾	31,600	133
	St. Vincent, ...	147		½	35,700	243
	Grenada and Grenadines,	166		½ +	37,700	227
	Barbados, ...	166		½ +	162,000	977
	Trinidad, ...	1,754		6 −	110,000	63
	Smaller Islands, ...	600		2	166,000[2]	
Coast Islands (Dutch), ...		495		1⅔	35,000	70
Total (in round numbers), ...		94,400	1 +		4,400,000	46

[1] Including the adjacent small islands. [2] Including the floating population of Guadeloupe and dependencies.

GENERAL CHARACTERISTICS.—The comparison of the West Indies with the Eastern Archipelago will suggest itself to almost every one, and the following out of this comparison brings out various interesting points of resemblance and difference. The most obvious points of resemblance are, that both groups consist of a large number of large and small islands, that both lie to the south-east of continents belonging to the northern hemisphere, and that both lie in warm seas, the West Indies mainly, and the Eastern Archipelago wholly within the torrid zone. A glance at the statistical tables of the two groups will reveal the most obvious point of difference between them, namely, that the eastern group has a much greater total area and much larger islands than the western. The whole area of the western group is not much more than a third

of that of the largest islands of the Eastern Archipelago and less than an eighth of the aggregate area of that group. Cuba, the largest of the West Indies, is less than one-sixth of the largest island of the Eastern Archipelago, and Timor, which is a comparatively small member of the Eastern Archipelago, is nearly three times as large as Jamaica, the third in size of the West Indies. A less obvious but more interesting point of comparison is suggested by the sounding-line. We have seen that a deep channel known as Wallace's Line divides the Eastern Archipelago into two groups, and points to the fact that in a previous geological epoch one of these groups belonged to the continent of Asia and the other to Australia, a fact which at once explains and is confirmed by the distribution of the fauna and flora of the group. Now similar observations have been made in the West Indian region. A series of soundings made by a steamer belonging to the United States government between December 1878 and March 1879 has shown that a line of a hundred fathoms or more in depth separates South America from the West Indian Islands except Trinidad and Tobago, and that if we suppose (as seems probable) that all that part of the Caribbean Sea which is less than five hundred fathoms in depth was above the surface at the time when the Isthmus of Panama was not yet in existence, then this part of the world must at that time have been occupied by a group of large islands, communicating by broad channels with the Pacific Ocean, but with the Atlantic Ocean only by three narrow channels, one between St. Lucia and Martinique, a somewhat broader one between Martinique and Dominica, and the third between Sombrero and the Virgin Islands, while the whole series of islands from St. Lucia southwards (exclusive of Barbados) was connected with what is now the northern part of South America, and Jamaica was connected with Central America leaving only a narrow channel between the large island thus formed and Hayti. At the same time a broad sea separated the United States from the West Indies. In harmony with these facts it is observed that the fauna and flora of Trinidad are very closely allied to those of South America, that the south-eastern islands generally exhibit more in common with South America than the rest of the West Indies, while these other islands (including the Bahamas) have a fauna and flora much more closely allied to those of Mexico and Central America than to those of the south-east of the United States.

In general the West Indian fauna contains a comparatively small number of native mammals, and some of the species are extinct. Among the most important are a few small species of ape, armadillos, opossums, musk-rats, fish-otters, raccoons, agoutis, and bats; in Trinidad also peccaries, deer, and ocelots. In Jamaica apes and agoutis are now the only survivors. The domestic animals are, as throughout America, of European introduction, and are now very numerous on the savannahs of all the larger islands. A less welcome importation from Europe is the brown rat, which sometimes commits great ravages in the sugar-cane plantations; and yet it was purposely introduced into Jamaica in order to help in destroying a similar species. Birds are very numerous. Various kinds of parrots and humming-birds are to be seen in the woods, and immense numbers of water-fowl on the coasts. Of amphibians the principal are caymans, turtles,

and lizards. Fish and insects are remarkably abundant; and there is a kind of crab, known from its remarkable swiftness and agility as the racer-crab, which is almost equally destructive to sugar plantations with the brown rat. Among the insects are several species of fire-flies, which emit sufficient light to enable one to read. The nigua, chigoe, or "jigger," mentioned as one of the insect pests of Central America, is also plentiful here.

The West Indian archipelago is not so highly volcanic as that of the East Indies, but a line of active volcanoes runs through the Windward Islands from St. Kitts to St. Vincent.

CLIMATE.—With regard to climate the West Indies agree with the islands of the Eastern Archipelago in having tropical temperatures and the alternation of rainy and dry seasons characteristic of tropical lands; but there is an interesting difference between the two groups in the mode in which this alternation is brought about. The Eastern Archipelago belongs to the domain of the monsoons, or alternating regular winds, and the succession of wet and dry seasons is due to the fact that one of these monsoons blows from warmer to colder latitudes, or from regions in which the capacity of the atmosphere for holding vapour in suspension is relatively high to one in which it is relatively low, and the other from colder to warmer latitudes, or from regions of lower to regions of higher capacity for vapour. In the West Indies again there is only one regular wind, the north-east trade-wind, which blows with varying strength and with slight variations in direction for about eight months in the year. During our winter and spring months this wind blows with great steadiness and considerable force, and it then has, as a rule, on the islands the same rainless character that distinguishes it on the ocean. During the summer, however, the trade-wind, on account of the high position of the sun, loses its strength, and at the same time gradually blows more and more from an easterly direction, so that it loses its power of taking up more vapour without condensation as it advances. Local calms consequently often take place, and are generally accompanied or followed by thunderstorms and heavy rains. As the summer continues the sea steadily increases in temperature, and during the autumn, especially in the month of September, higher temperatures prevail over the sea than over the land, in consequence of which the winds become variable, and as the evaporation at sea is then exceptionally rapid, the precipitation on land is exceptionally great. During this period west and south-west winds blow, often with great fury, and often the wind shifts rapidly to all points of the compass. This also is the season of the terrible West Indian hurricanes, corresponding to the East Indian typhoons which occur at the change of the monsoons. Among the islands on which hurricanes are most frequent and destructive are Barbados, Guadeloupe, Antigua, and Santa Cruz. In Cuba they are less frequent than in the other members of the Greater Antilles. Tobago and Trinidad in the south-east are beyond their usual range. On the north coasts of the Great Antilles no season is entirely without rain, for in winter they are exposed to the "northers" of the North American continent, which come heavily charged with vapour from the Mexican Gulf.

The total amount of the mean annual rainfall varies greatly according to the elevation. In Jamaica it varies from about 35 inches on certain parts of the coast to about 137 inches at Bath at the height of 170 feet in the south-east (or rainiest) part of the island. The mean temperature in Barbados is about 75° Fahr., in St. Thomas 81°, at San Domingo 78°. The flat coast-lands are everywhere hot, and during the rainy season generally unhealthy. The harbours are often visited by yellow fever. The higher tracks, on the other hand, are everywhere perfectly healthy. Among the smaller islands Montserrat, Barbados, Trinidad, Antigua, St. Christopher, St. Martin, and St. Bartholomew have the highest reputation for salubrity; while St. Lucia, Tobago, Guadeloupe, and Mariegalante are among those which have the worst reputation in this regard.

PRODUCTIONS.—At the time of the discovery of the West Indies these islands were as well wooded as those of the Eastern Archipelago, but since the advent of the Europeans the forests have to a large extent given place to plantations, and on some of the smaller islands, as Barbados and Antigua, have been almost entirely cleared away. The higher parts of the islands, which receive an abundant rainfall, are still covered with dense woods, to which palms and tree-ferns give the prevailing character, though mahogany, ebony, cedar, fustic, and other valuable timbers are also found in them. Lower down brilliantly coloured flowering shrubs and herbaceous plants are scattered over the slopes and plains; and on the flat coasts there are dense mangrove swamps. Forty different kinds of palms have been counted in the West Indies, but a considerable proportion of these are confined, in that archipelago, to Trinidad, although also found on the mainland of South America. The genera Copernicia, Sabal, and Thrinax are the most numerously represented. The cabbage-palm is the loftiest and stateliest of the tribe found on the islands, but it is rivalled in height and general appearance by the *Sabal umbraculifera*. The coco-nut palm is largely cultivated.

Of the food products which furnish the principal food of the people in the Eastern Archipelago, namely rice and sago, the former is grown only to a limited extent on the West Indies, and the latter not at all; and here the chief food products are manioc or cassava, yams, and batatas or sweet-potatoes. The principal cereal is maize. Coffee and cane-sugar, the principal plantation products of the Eastern Archipelago, are both grown also in the West Indies, but while coffee is the more important of the two in the former group of islands, cane-sugar is so in the latter. Sugar is in fact the staple product of almost all the West Indian Islands. Coffee is the staple only in the republic of Hayti, in the west part of the same island into which the sugar-cane was first introduced by the Spaniards (in 1506). Both nutmegs and cloves, the chief spices grown in the Eastern Archipelago, have been introduced into the West Indies, but pimento or allspice, an important product of Jamaica, is the only West Indian spice that has yet attained a high commercial value. Among the other vegetable products of the West Indies are cacao, indigo, tobacco, bread-fruit, cashews, pine-apples, and all kinds of tropical fruits, besides cassia, ginger, arnotto, and other articles introduced by the Europeans.

The minerals of the islands are of comparatively little importance. Gold is obtained on Hayti, copper in Cuba, asphalt in Cuba, Trinidad, and elsewhere, salt from the Bahamas, and one or two other minerals besides. Of commercial products yielded by the animal kingdom almost the only one of importance is sponges, which are procured in large quantity from the banks surrounding the Bahamas.

PEOPLE.—With respect to the inhabitants of the West Indies as compared with those of the Eastern Archipelago, there are points both of agreement and contrast worthy of notice. Both groups agree in containing both a European and a non-European population, the former being in general the dominant race, and the latter making up the bulk of the inhabitants; but while in the Eastern Archipelago the non-European population is mainly of native origin, in the West Indies that portion of the population (consisting chiefly of Negroes and Eastern Asiatics) was originally introduced by the Europeans. It is not to be inferred, however, that at the time of the first arrival of the Europeans the West Indies were uninhabited. There were at that time two principal tribes or races inhabiting the islands. These were the Arawaks and the Caribs, and the former, who were a peaceable race living under numerous hereditary princes called *caciques*, are estimated to have numbered nearly three millions. The latter, who inhabited not only Hayti and the Lesser Antilles, but also the northern part of South America, were a wild and warlike people, and offered a stubborn resistance to the Spanish invaders, but at last had to succumb. Both races died out on the West Indies with extraordinary rapidity, the barbarities practised by the Spanish adventurers, in spite of the measures by which the Spanish sovereigns of the period endeavoured to protect the natives, and in spite of the efforts of the more noble-minded of the Spanish priesthood belonging to the expeditions led by these adventurers, being such as to make their extinction

Negroes Returning from Work.

by no means wonderful. So rapidly did they disappear that in Porto Rico, for example, which at the time of the advent of the Europeans had a dense native population, the natives were forty years afterwards all dead. Repeated reports from governors of that island written between 1530 and 1536 state that no Indians then survived. The Arawak race is now quite extinct, but the Caribs, though extinct on the West Indies, still form a considerable section of the population in Guiana.

At the present day the white or European population (not all pure) may amount to about one-third of the whole, and of this part of the population about 89 per cent is of Spanish, and about 6 per cent of English origin. The Negroes (including mulattoes) far exceed in number all the other inhabitants, but the proportion of Eastern Asiatics is steadily increasing. The Negro element was introduced by the slave-trade, which began within a few years after the discovery of the islands and continued down to the early part of the present century. Slavery continued on the British islands till 1834, when the slaves were declared free, although they were still bound to work for their former masters for a limited term as "apprentices." Since then it has been abolished on all the other islands except Cuba, and there too, under a law recently passed it is now in process of extinction. The results of the abolition of slavery have not been in every respect satisfactory. The immediate consequence has been in fact in almost every case to inflict a severe blow on the industry of the islands, for as soon as the Negro found himself no longer compelled to work he refused to do so. Wherever he could find untenanted forest land to which he could retreat, and where, owing to the exuberant fertility of the soil, he could satisfy his wants almost without labour, he mostly preferred to do so. He would settle himself on some small patch of unoccupied ground, build a rude cane hut, and set his wife to cultivate a few yams, maniocs, and sweet-potatoes, while he himself caught a few fish in the streams, drank rum, and smoked tobacco. Many of the planters were ruined, and on some of the islands the white population greatly diminished. On the British island of Dominica the export of coffee sank from an average of about 4,000,000 lbs. annually before the abolition of slavery to less than 20,000 lbs. in 1861. On the French island of Guadeloupe the production of sugar sank from 76,000,000 lbs. in 1847, the year before the law for the abolition of slavery was passed by the French assembly, to 27,000,000 lbs. in 1850, although several years were allowed for the masters to get quit of their slaves. A similar diminution of production took place on nearly all the other islands on which the slaves were freed, only those escaping on which (as on Barbados, for example) all the forest land had been cleared and laid out in plantations, so that the Negroes were compelled by circumstances either to work or starve. It was to remedy this evil that the Asiatic population was introduced in the form of Indian and Chinese coolies, and the results of this step have been so far satisfactory. Production has revived, and has already in some cases exceeded its former amount. On Dominica the export of coffee has risen to upwards of 800,000 lbs. in good years, and on Guadeloupe the annual production of sugar is already between 80,000,000 and 90,000,000 lbs., or greater

than it was in 1847. Even Cuba has imported coolie labourers with beneficial results, for it is found that that species of labour is better than the forced labour of the Negro slaves. It may be expected, too, that the importation of these Asiatic labourers will have an indirect as well as a direct effect in the revival of production, for as their number increases the Negroes will find themselves compelled to work if they are to live at all. An improvement in this respect may also be looked for from the efforts that are now being generally made to educate the people. In the British colonies there are numerous schools carried on by the Church of England and other ecclesiastical bodies, and all of them receive government assistance. The Negroes are for the most part nominally Christianized, but on the Spanish islands they are still practically heathens (fetish-worshippers), and only so far Christians in that they have been baptized.

GOVERNMENT, &c.—Like the Eastern Archipelago the West Indies are for the most part in the possession of European states. If the islands belonging to Venezuela be left out of account, all the West Indies except Hayti belong to five powers:—Spain, Britain, France, Holland, and Denmark. The Spanish possessions comprise Cuba and Porto Rico with the adjacent islands, including Culebra and Vieque or Crab Island belonging to the Virgin Islands; total area, about 49,500 square miles; population, about 2,060,000. The British possessions comprise the Bahamas; Jamaica with the Turks and Caicos Islands belonging to the Bahama group, and the Great and Little Cayman; the Leeward Islands, consisting of the British Virgin Islands (Tortola, Anegada, Virgin Gorda, &c.), St. Kitts with Anguilla, Nevis with Redonda, Antigua with Barbuda, Montserrat, and Dominica; the Windward Islands, consisting of St. Lucia, Grenada and the Grenadines, St. Vincent, Tobago, and Barbados; and Trinidad; total area, about 13,350 square miles; population, 1,131,500. The French possessions comprise the colony of Guadeloupe, consisting of the two adjacent islands of Guadeloupe proper and Grande Terre, besides Mariegalante, Désirade, Petite Terre, St. Bartholomew, and part of St. Martin, and the colony of Martinique; total area, about 1100 square miles; population, 345,000. The Dutch possessions comprise, besides the islands designated in the table as the Coast Islands (Curaçao, Oruba, Buen Ayre, and some smaller islands), also the minute islands of St. Eustatius and Saba and part of St. Martin lying among the Leeward Islands of the British; total area, about 520 square miles; population, 42,600. The Danish possessions consist of St. Thomas, St. John, and Santa Cruz, all belonging to the Virgin Islands; total area about 140 square miles; population, about 37,600. The island of Hayti is divided between the two Negro and Mulatto republics of Hayti (in the west) and San Domingo (in the east), the former with an area of about 9230 square miles and a population of about 550,000; the latter with an area of about 20,600 square miles and a population of about 250,000. The governors of all the colonies are appointed by the mother country. The islands of Cuba and Porto Rico have the right of sending representatives to both houses of the Spanish Cortes, and each of the two French colonies has the right of sending one senator and one deputy to the French National Assembly. In the British colonies representative assemblies

have certain legislative functions in the Bahamas, the Leeward, and the Windward Islands, but the executive officers are under the control of the crown, and in the case of Jamaica and Trinidad (crown colonies) the crown has the entire control both of the legislation and the administration. The Leeward and Windward groups have each a general legislative assembly, but all the more important islands belonging to each of them have also separate legislative bodies.

SPANISH POSSESSIONS.

CUBA, the largest and most westerly of the Antilles, has a length from Cape St. Antonio to Havana, and thence to Cape Maysi, of 750 miles, and a breadth from north to south varying from under 20 to over 120 miles. The navigation of the coast is very unsafe, on account of the rocks and shoals which encompass it almost without interruption, and often extend from two to three miles into the sea. The broken outline of this vast extent of coast, however, affords a great many ports and anchoring places, which are equally safe and easy of access.

A ridge of mountains traverses the whole of the island from the west to the east, expanding in the east so as almost to fill the eastern extremity, and attaining its highest elevation (between 7000 and 8000 feet) where it overlooks that part of the coast which runs nearly due east and west. At the foot of the mountains the country opens into extensive savannahs. The streams which descend from the mountains on both sides abound in fish of different kinds, and are said to bring down considerable quantities of gold.

The mineral riches of Cuba have not yet been fully explored, but it is known to be not deficient in this respect. Only copper is worked to any extent, and the production of this metal too is on the decline. On the north coast are extensive lagoons, which, in dry years, produce immense quantities of marine salt. A beginning has been made with the working of the beds of guano that have long been known to exist on the Jardinillos off the south coast of the island.

The vegetation of Cuba is exceedingly luxuriant. Two crops of maize are obtained in the year. Rice is also produced in considerable quantities in many districts. But the principal crops are sugar and tobacco, and their produce makes up about 99 per cent in value of the total exports of the island, about 83 per cent representing the value of the sugar produce, and 16 per cent that of the tobacco. Since 1847 the sugar-cane has been largely cultivated by means of coolies imported from China. In 1873, however, the Chinese government, finding that the coolies were virtually reduced to the condition of slaves, stopped the emigration of its subjects to Cuba, and great difficulty is consequently felt by the planters in obtaining a sufficient supply of labour. The difficulty of procuring labour is increased by the fact that the Negro and Chinese population already on the island is diminishing in numbers, the Negro on account of the fearful infant mortality that prevails, and the Chinese, because that part of the population consists entirely of males. Strenuous efforts were made in consequence to induce the Chinese again to permit the emigration of Chinese subjects to Cuba, and on the 17th of November, 1877, a treaty was concluded at Peking, allowing

the resumption of this emigration, but not the emigration of labourers under contract, that is, coolie emigration, and making various provisions for seeing that the interests of the emigrant are properly looked after. The treaty has not yet, however, led to the introduction of many new Chinese labourers, the Chinese authorities not being satisfied with the arrangements made by the companies and private speculators seeking to promote that immigration. Slave labour, too, is on the eve of extinction under a law which provides for the liberation of the

Scene on a Sugar Plantation.

slaves after a period of "patronage" of eight years, during which the slaves are to be paid a small wage besides being maintained by their masters. Besides the deficiency of labour, the sugar industry, along with all the other industries of Cuba, suffered greatly from the ten years' civil war of 1868–78, and to crown all a blow was inflicted on the sugar production of Cuba in 1876 by the mother country, which, in order to protect her own sugar production (which only meets about one-fifth of the home demand), imposed a duty on all imported sugars. The market of the Cuban sugar planters is now almost confined to the United States (Great Britain receiving her supplies of sugar from her own West Indian colonies at a price with which Cuba cannot compete), and the industry now seems to depend for its very existence on the maintenance of that market. The

best tobacco is grown in Vuelta de Abajo, a district a little to the west of Havana, about 84 miles in length and 21 in breadth, and here the mildest and finest flavoured is produced on the banks of the San Sebastian. Most of it is made into cigars, celebrated under the name of Havana cigars, reckoned the best made anywhere. Down to 1820 the cultivation and sale of tobacco formed a monopoly, but in that year they were thrown open. Formerly coffee was an important product on the north side of the island, but most of the coffee plantations have been devoted to the production of sugar, and almost the whole coffee production is now required for home consumption.

The roads in Cuba, formerly in a most wretched condition, have been much improved; and the internal traffic of the island is now facilitated by the railways, the first of which from Havana to Guines, a distance of 46 miles by railway, was opened in 1837.

Unlike most of the other West Indian Islands Cuba has a majority of whites among its inhabitants. At the census of the 31st of December, 1877, they formed 63 per cent of the whole population, while the coloured population (Negroes and mulattoes) amounted to less than 33 per cent (19 per cent free coloured, and 14 per cent slaves), and the Chinese to about 3 per cent. In all sections of the population there was an unusual disparity between the numbers of males and females. The average number of females to 100 males in the whole population was 75·5; among the whites it was 73·5, a consequence of the fact that the Spanish emigrants to Cuba are almost entirely males, and even among the coloured people it was only 95·5. The Chinese females did not number a hundred.

Cuba was discovered by Columbus on the 28th of October 1492, and has been in the possession of the Spaniards ever since, though from 1868 to 1878 the Cubans were in insurrection against the mother country. Since that insurrection a more liberal form of government has been granted to the island.

The capital of the island is Havana (in Spanish, *La Habana*, "the haven"), on the north coast in lon. 82° 22′ W., one of the principal seats of commerce in the New World. Its harbour, formed by the bay on which the town stands, nowhere exceeds a mile and a half in width, and is one of the best to be seen anywhere. The principal building in the town is the cathedral, which is worthy of note from being believed to contain the remains of Columbus. The most important industry is the manufacture of cigars. The population amounts to 206,000, of whom 139,000 are whites, 38,000 free coloured, and 29,000 slaves. Matanzas (36,000) on the north coast, about 50 miles east of Havana, ranks next after that town in commercial importance. Puerto Principe (31,000), about lon. 78° W., is the principal inland town.

PORTO RICO (Spanish, *Puerto Rico*), the fourth in size of the Antilles, lies between Hayti and the Virgin Islands. A range of mountains, averaging about 1500 feet in height, and attaining in its loftiest peak about 3680 feet, runs through the island, east to west. On their lower slopes are extensive savannahs, on which numerous herds depasture; and along the coasts tracts of level, fertile land, varying in some places from 5 miles to 10 miles wide, but in others the mountains approach much closer to the sea. Nearly the whole

of the north coast is lined with navigable lagoons. There are numerous bays and creeks, deep enough for vessels of considerable burden; but the north coast is subject to tremendous ground seas, which beat against the cliffs with great violence. San Juan is the only harbour on that coast which is safe all the year round. Porto Rico is wholly an agricultural island, and the chief productions are the same as those of Cuba, except that coffee is here a product of much more importance, furnishing a much greater export value than tobacco, and in some years almost as great an export value as the produce of the sugar-cane. Its cultivation, too, is increasing, as it is found a more remunerative crop than sugar since the great fall in the price of sugar consequent on the development of the beet-sugar manufacture. The island does not suffer, like the sister Spanish island, from a deficiency of labour, and it is probably owing to this that since the slaves became free in 1876, after a three years' term of enforced contract, the island has not been exposed to the same economical disasters as befell other West Indian islands in similar circumstances. The commerce of the island is still large —about half as large again as that of the larger island of Jamaica. No railways exist on the island, and the roads are still in a wretched condition. Nearly three-fifths of the total population are whites. The island was discovered by Columbus in 1493, and has been in the possession of Spain since that date. The capital is San Juan, or in full San Juan Bautista de Puerto Rico. It stands upon a small island connected with the mainland by a bridge, and is surrounded by strong fortifications, which confine the inhabitants, 24,000 in number, to an area of about half a square mile. They are consequently huddled together in defiance of sanitary laws, the working people living round the *patios* or court-yards of the larger houses, where a single room eight or ten feet square is often occupied by a whole family. The harbour is very spacious, and capable of accommodating ships of the largest size, but its entrance is narrow and somewhat difficult.

BRITISH POSSESSIONS.

THE BAHAMA ISLANDS or **Lucayos** are a group of low coralline islands surrounded by numerous rocks and shoals, extending from Florida Channel south-eastwards in the direction of the island of Hayti. The name Lucayos is a corruption of the Spanish *Los Cayos*, "the keys," the latter word being also a corruption of the Spanish *cayos*, which is the name given to such low rocks and islands as the Bahamas consist of. The soil is a thin but rich vegetable mould, and the principal product of the surface is pine-apples, which form the most important export of the group. But besides pine-apples, oranges and bananas have also been grown for a long period, and to these objects of cultivation have more recently been added coco-nuts, tomatoes, onions, tobacco, and lemons. So thin is the soil that in planting coco-nuts it is a common practice to excavate a hole in the rock, and then fill it with earth in which the nut is placed. Sponges are obtained in large quantity from beds round the islands, and form the second export in value, and the third export in value is salt. A considerable number of the inhabitants are employed as what are called "wreckers," their business

being to rescue shipwrecked vessels with their crews and cargoes. They sail in small, flat-bottomed sloops, just fitted for the seas they navigate. They are excellent sailors, are familiar with all the keys, shoals, and breakers, and are ready to encounter with alacrity and courage any danger or hardship in the pursuit of their calling. A license to carry on the business is obtained from the governor, and they receive salvage on all property saved. The delightful winter climate of the islands makes them a favourite resort during that season for those afflicted with pulmonary diseases. San Salvador or Cat Island, one of this group, is generally believed to be the same as Guanahani, the land first touched on by Columbus (Oct. 12, 1492) on his first great voyage of discovery. The first British settlement was made on New Providence towards the close of

Harbour Island, Bahamas.

the seventeenth century, and the present seat of government is the small town of Nassau on that island.

JAMAICA, the largest of the British West Indian Islands, lies more than a degree and a half to the south of the eastern portion of Cuba, and about two degrees west of Hayti.

The general appearance of the island on approaching it is extremely beautiful. On the north it rises into hills of gentle ascent, covered with pimento groves and a brilliant verdure, and intersected by vales which exhibit the most romantic scenery; while on the south it presents abrupt precipices and inaccessible cliffs, the general effect being heightened by the profusion of streams which pour from every valley, and which frequently project themselves from the overhanging rocks into the ocean. The coast-line is indented with a great number of good harbours, of which Port-Royal or the harbour of Kingston is the most considerable. The island is traversed by mountains in all directions; the principal chain, called the Blue Mountains, occupying the centre of the island, and stretching east to west with so sharp a crest that in some places it is only 4 yards across. The principal rock is limestone, which contains some extensive and numerous smaller caverns. There are numerous valleys, but all

very narrow, not more than a twentieth part of the island being level ground. Still several extensive level tracts occur: the principal, Liguanea, of no great fertility, commences a little east from Kingston, and extends west for about 30 miles, with an average breadth of 5 miles. Earthquakes of a violent character have been frequent; the most tremendous on record occurred in 1692.

The soil of Jamaica is not, on the whole, very fertile, though many fertile tracts occur. Less than 5 per cent of the whole surface is under crops, about 17 per cent in guinea and other pasture grasses, and about 45 per cent is composed of woodland in the hands of owners or land which has gone to waste since the liberation of the slaves. The remainder of the surface is unpatented primeval forest or valueless rock. The chief cultivated vegetable

Entrance to Port Nassau, Bahamas.

products are sugar, coffee, and pimento, and next in importance are maize (for home consumption), tobacco (principally consumed on the island), ginger, and arrow-root. The cinchona-tree, the cacao-tree, and the nutmeg have all likewise been introduced with success, and experiments have been made with cloves, cassia, and vanilla. The produce of the sugar-cane is still the principal export, though sugar is far from being now, as it once was, the mainstay of the island. Only about 5 per cent of the whole population are employed in connection with the sugar plantations, and about half of these are Indian coolies, the Negroes showing here as elsewhere a strong disinclination to work on plantations. Coffee, pimento, fustic and logwood, ginger, arrow-root, and fruit rank next in importance after sugar as exports. The fruits (which are nearly all destined for the United States) consist of bananas, pine-apples, limes, mangoes, oranges, &c. Only the first two of these, however, can be said to be cultivated. The rest grow wild, unpruned and untended. The chief port is Kingston, and those of secondary importance are Lucea, Montego, Falmouth, and Port Antonio on the north coast, and Morant Bay on the south coast.

The English Church in Jamaica is presided over by a bishop, whose see extends over the Bahamas and Honduras, and who is assisted by a regular staff

of parochial clergy. The Baptists, Methodists, Presbyterians, and other Protestant bodies are well represented, and there is a pretty large number of Roman Catholics and Jews. A considerable debt has been contracted chiefly for the making of roads and bridges. Spanish-town and Kingston are united by a railway. The latter town (pop. 35,000), situated on a land-locked bay on the south-east coast, is the capital of the island. The harbour, which is formed by the bay on which the town stands, is available for the largest ships. The town itself is regularly built on a gentle slope, which is inclosed by the loftiest ridge of the Blue Mountains.

Jamaica was discovered by Columbus on his second voyage on the 3d of May, 1494, and remained for the most part in the possession of Spain till the time of Oliver Cromwell, when it was conquered by the English. Till 1865 the island had a representative system of government, a house of assembly being elected by the freeholders of the island. But in that year an insurrection took place among the Negroes, and Jamaica was thereupon made a crown colony. Of the dependencies of this colony the **Caicos Islands**, belonging to the Bahama group, are inhabited by a small population who support themselves by fishing, cattle-rearing, and the cultivation of a few fruits and vegetables; the **Turk's Islands**, belonging to the same group, are perfectly barren and produce nothing but salt; and the **Caymans**, lying to the north-west of Jamaica, produce turtles.

THE LEEWARD ISLANDS are situated in the north-eastern bend of the West Indian Islands. St. Christopher or St. Kitts, Nevis, Montserrat, and Dominica are all more or less covered with volcanic mountains clothed with forests, but are fertile in the low grounds, which produce chiefly sugar for export. The cultivation of limes is extending on Montserrat and Dominica, and Antigua exports besides sugar tamarinds and arrow-root in considerable quantity. The last-mentioned island is the most populous and most important of the group, and is the residence of the governor of the colony. Its area is only about 100 square miles, but on that surface it had in 1871 a population of 35,000, which is a denser population than on any other of the British West Indies except Barbados. It scarcely needs to be mentioned that almost the whole surface is under cultivation. Its dependency of Barbuda, though it has three-fourths of the area of Antigua, is inhabited by only a few hundreds. Besides Antigua the only other islands containing a population of more than 15,000 in 1871 were Nevis and Dominica. Several of the islands have frequently changed masters. The Virgin Islands became British in 1666, when a band of Dutch buccaneers were driven from Tortola; Nevis was colonized by the English in 1628, Antigua and Montserrat in 1632, Dominica has been uninterruptedly in British hands since 1763, St. Christopher since 1783. The total population of the colony in 1871 was 118,000.

THE WINDWARD ISLANDS, as a British colony, are composed of all the islands between Martinique and Trinidad. All except Barbados are mountainous, and St. Lucia, St. Vincent, and Grenada are volcanic. On St. Vincent a tremendous eruption took place in 1812. The products of this group are

somewhat more varied than those of the Leeward Islands, though sugar is still the most important. St. Lucia exports also cacao; St. Vincent arrow-root, cacao, and cotton; Grenada cacao (the staple product), coffee, ground-nuts, and spices; Barbados petroleum, limestone and lime, whale oil, hides, fruit, tamarinds, and aloes. On St. Vincent there has been since 1846 a colony of Portuguese labourers, who have proved a valuable acquisition. All the larger islands except Tobago have a population of at least 30,000, and Barbados, which is the most important member of the group, had in 1871 a population of more than five times that number. The surface of this island is diversified by hills, but so general is the cultivation that only between 6000 and 7000 out of 106,470 acres remain uncultivated. The population is one of the densest on the surface of the globe, and is still increasing. Since the census of 1871 it is estimated to have increased from an average of 976 to one of about 1070 to the square mile. The population is in fact here redundant and has to be kept down by emigration. Fortunately there is in the meantime an ample outlet for the surplus population in British Guiana. The great majority of the inhabitants are Negroes. The island is the residence of the governor-in-chief of the Windward Islands and the headquarters of the British forces in the West Indies. Bridgetown, the capital of the island, is situated on the south-west coast and has a population of about 20,000. Barbados was taken possession of by England in 1605, and has since been uninterruptedly in British hands. Most of the other islands have frequently changed hands, but St. Vincent and Grenada have been constantly in British possession since 1783, St. Lucia since 1803, and Tobago since 1814. The total population of the group in 1871 was 285,000.

TRINIDAD is, excepting Jamaica, the largest of the British West Indies. It lies immediately off the north-east coast of Venezuela, at the mouth of the Gulf of Paria, opposite the northern mouths of the Orinoco. Approached from the north Trinidad appears like an immense ridge of rocks; its eastern and southern shores are also rocky and high; but on the west, or side next the Gulf of Paria, it presents one of the most beautiful and magnificent panoramas imaginable, hills, valleys, and plains being covered with a verdure that knows no decay. The mountain chains run west to east. In the north, near the sea, they attain an elevation of about 3000 feet. Near Point Icaque, forming the south-western extremity of the island, are several mud volcanoes. Submarine volcanoes also occur on both sides of the island. An asphalte or pitch lake about $1\frac{1}{2}$ mile in circumference occurs on the leeward side of the island, on a small peninsula jutting into the sea a little to the north-east of Guapo Bay. In the middle the pitch boils up in a liquid state. The climate is less unhealthy than that of many of the other West India Islands, and it is not subject to droughts. The soil is in general extremely fertile, and the elevated parts of the surface are mostly covered with dense forests. Besides the produce of the sugar-cane the only important article of export is cacao, the value of which is rapidly rising, and is already nearly equal to one-half of that of the former export. Trinidad was taken from the Spaniards by the British in 1797. Port of Spain (20,000), on the north-west side of the island, is the capital, and one of the finest towns in the

West Indies. There are numerous good harbours on its western and southern coasts; but few, and those indifferent, on its eastern and northern shores.

FRENCH POSSESSIONS.

GUADELOUPE as a colony comprises all the French possessions in the West Indies except Martinique, and thus includes, besides the double island of Guadeloupe (composed of Guadeloupe proper and Grande Terre), the neighbouring islands of Mariegalante, Petite Terre, Désirade, and Les Saintes, and the island of St. Bartholemew and part of St. Martin about lat. 18° N. The total population of the colony in 1877 was 177,000, including a floating population of 32,000.

Guadeloupe proper is a mountainous volcanic island, in which the active volcano of La Soufrière attains an elevation of about 5000 feet. The island is separated by the Rivière Salée (salt river), a channel of about seven miles in length, and only from 100 to 400 feet broad, from **Grande Terre**, which presents a complete contrast to Guadeloupe proper, being of coralline origin and hence generally flat, and having its surface studded only with low rounded hills. While, too, in Guadeloupe proper the mountains and forests cause the precipitation of abundant rains, Grande Terre often suffers from prolonged droughts, and its spongy soil absorbs the little water that does fall, and forms marshes. The principal cultivated products of the two islands are sugar, coffee, cotton, and arnotto. Dye-woods and cabinet-woods, copper, and other articles are also exported. The islands are liable to be visited by earthquakes. That of February 8th, 1843, completely destroyed the town of Point-a-Pitre on Grande Terre. Basse Terre (9000), on the south-west of Guadeloupe proper, is the capital. Guadeloupe was first colonized by the French in 1635, and has been mostly in their possession since that date.

Mariegalante, to the south of Grande Terre, resembles that island in its origin, physical features, and products. It was first settled by the French in 1647. In 1877 it had (on an area of 58 square miles) a population of 15,000. The small volcanic island of **Desirade** east of Grande Terre was the first island touched on by Columbus on his second voyage (Nov. 3, 1493), and was hence called by him Deseada (desired). There is a small population supporting itself by fishing and a little cultivation. **Petite Terre**, to the south-west, is uninhabited. The rocks called **Les Saintes** are strongly fortified, and on that account are sometimes known as the Gibraltar of the Antilles. They produce good coffee. The island of **St. Bartholomew** (French, St. Barthélémy) has only a small population supporting itself chiefly by cattle-rearing. In 1784 it was handed over by France (to which it had belonged for more than 100 years) to Sweden, but was retroceded to France under a treaty concluded in 1877. **St. Martin**, north-west of St. Bartholomew, is composed of limestone rock, and has a hilly surface. The chief production is salt. The island was divided by the French and Dutch between themselves in 1648, the French taking the north-west portion and the Dutch the south-east. The inhabitants of both parts, about 7000 in number, speak English.

MARTINIQUE is a considerable island between the British islands of Dominica and St. Lucia, very irregular both in its outline and superficial features. Extensive masses of volcanic rock cover the interior, rising in some points to upwards of 4000 feet in height, and in some places descending to the sea-coast. Between these mountains, which are generally well-wooded, there occur broad irregular valleys of great fertility, occupying in all about two-fifths of the surface, and producing sugar, coffee, cacao, and cotton. Venomous serpents are numerous. The population in the fertile parts is extremely dense. It is composed chiefly of Negroes, but Negroes who, by intermixture with the Europeans, have lost the most repulsive Negro features. They speak the French language, have adopted to a large extent French manners, are polite, lively, and talkative, graceful in their movements and gestures, and above all remarkably clean and neat. Cleanliness, indeed, is said to be a general characteristic in Martinique. The streets are, we are told, so white that you could dine off them; alongside of the pavements are channels of pure running water; the houses outside and inside are spotless, and every house contains a bath. But in spite of all that the inhabitants are as loose in their morals as the Negroes of the other West Indian Islands. The island was settled by the French in 1635, and has been for the most part in their hands ever since, though it has twice been taken by the British.

DUTCH POSSESSIONS.

These consist chiefly of the three considerable islands of **Curacao, Aruba** or **Oruba,** and **Bonaire** or **Buen Ayre,** off the north coast of Venezuela. They are all hilly and have generally bold shores. The first mentioned is the most important, and contains more than two-thirds of the population of the group. Besides products of agriculture (sugar, cotton, indigo, and tobacco), the island exports salt, phosphate of lime, straw hats, and divi-divi. The island gives its name to the well-known liqueur curaçoa, which was originally made from the rind of an orange peculiar to this island. On the south-west coast there is the fine harbour of Santa Anna. The capital is Willemstad (8000) on the south coast. The island was taken from the Spanish by the Dutch in 1632, and has been mainly in the hands of the latter since then. Bonaire produces chiefly salt and cochineal, and the latter is the chief production of Aruba. The two small islands of **St. Eustatius** and **Saba** north-west of St. Kitts have together a population of about 4000, and the Dutch port of **St. Martin** has about 3500 inhabitants.

DANISH POSSESSIONS.

Of the Danish possessions, which all belong to the Virgin Islands, the largest and most important is **Santa Cruz,** which has an area of about 85 square miles. It is generally flat, well-watered, and fertile, and only a small proportion of the surface remains uncultivated, about two-fifths being in sugar

plantations. Besides sugar the principal crops are coffee, cotton, and indigo. The inhabitants number about 24,000, and speak principally English. The island has been in turn possessed by several powers, and was last ceded to Denmark in 1814. **St. Thomas** is the island next in importance, but solely on account of its trade. It has a rugged elevated surface, and is for the most part uncultivated, but its port of Charlotte Amalie, which is the seat of government of the Danish West Indies, has a fine harbour and is one of the principal entrepots of the West Indian trade. The whole population of the island is about 14,000, and of these about 13,000 are in the capital.

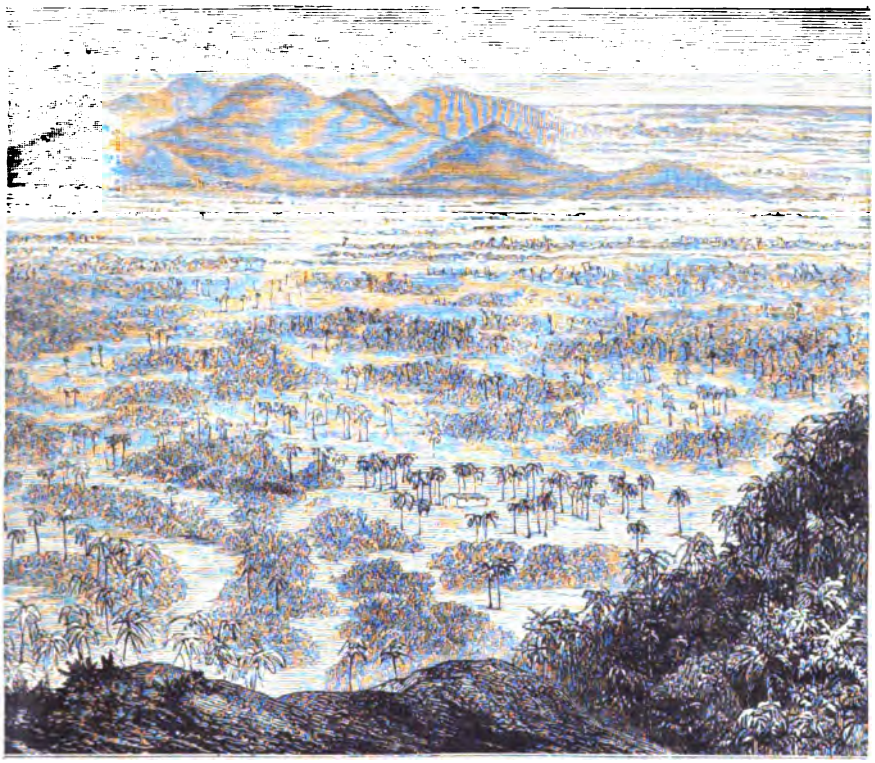
HAYTI.

Hayti, San Domingo or Santo Domingo, is after Cuba the largest of the Antilles, its area being nearly equal to that of Scotland, or somewhat less than two-thirds of that of Cuba. The island is intersected west to east by three chains of mountains, all mutually connected by offsets; between are extensive plains and savannahs. The principal central chain, which contains the culminating peaks, of which Cibao, 7200 feet high, is the loftiest, commences west at Cape Nicolas, takes an east-south-east direction, and terminates at Cape Engaño. Nearly parallel with this chain another, commencing west near Monte Cristo, nearly skirts the north coast, till it terminates east abruptly on approaching the Peninsula of Samana. Between these two mountain ranges extends the pastoral district of La Vega Real, or the Royal Plain, 130 miles long, watered by the Yaqui and Yuma. The third and south mountain range commences west at Cape Tiburon, extends east along the whole of the south headland, and terminates at the River Neiva, about 80 miles west of the town of San Domingo. Besides La Vega Real the only extensive plain is that on the south coast east of San Domingo, called Los Llanos, or the Flats, a rich pastoral district 80 miles long. All the rivers are encumbered at their mouth with sand-bars, and hence few of them are navigable. The Ozama, however, on which the town of San Domingo stands, admits vessels drawing about 12½ feet. There are several lakes, mostly in the south-west of the island. The chief are the salt lakes of Enriquillo and Azuey. The mineral products are various and rich, but are all neglected from want of capital. Mineral springs exist in various parts. Earthquakes, though not frequent, have been very disastrous. By one in 1751 Port-au-Prince was destroyed, and 60 miles of coast submerged; and by another in 1842 towns were overturned, and thousands of lives were lost.

The island, as already mentioned, is divided between two independent republics, the eastern and larger portion (formerly Spanish) now forming the republic of San Domingo, and the western (formerly French) the republic of Hayti.

SAN DOMINGO has an area of 20,598 square miles and a population of about 250,000, or 12 to the square mile. It contains the highest mountains, and at the same time the only considerable plains of the island—the Vega Real and Los Llanos, and thus possesses the land most capable of agricultural develop-

ment. Yet this section of the island has always been behind the western in respect of cultivation. The former of the two plains mentioned, which is spoken of by Samuel Hazard as containing the principal agricultural wealth of the island, and compared by him, as seen from Mount Cerro, to such a plain as is seen from Catskill, New York, or the Dyke in England, on a clear day, is yet stated to be "the very opposite in character, for here were seen no rich fields of



The Vega Real from Santo Cerro, San Domingo.

grain, no pretty farm-houses or neat villages, showing a careful and successful agriculture." (*Santo Domingo: Past and Present.*) But though the resources of the republic are very imperfectly developed, extreme poverty is rare among the people. The principal exports of the island are lignum vitæ, logwood, fustic, and sugar; and among those of minor importance are mahogany, coffee, honey, and wax. The population is composed mainly of Negroes and mulattoes, but people of Spanish descent are comparatively numerous, and Spanish is the prevailing language. As to its constitution San Domingo is a federal republic, like Mexico and the United States. A congress of two houses, the members of both of which are chosen by indirect election under a restricted suffrage for the term of four years, regulates the general affairs of the confederation, but there are five

separate states (San Domingo, Azua de Compostela, Santa Cruz del Seybo, Santiago de los Caballeros, and Concepcion de la Vega), with legislatures of their own. The capital is the town of San Domingo on the south coast, which was founded by the Spaniards in 1494, and has a population of about 15,000. It was at Isabella on the north coast of this republic that the first Spanish colony in the New World was founded by Columbus in 1492. The eastern portion of the island remained a Spanish possession till 1803, and was again in the hands of Spain from 1808 to 1821. From 1803 to 1806, and again from 1822 to 1844, it formed part of the republic of Hayti, but since the latter date it has been independent, though from 1863 to 1865 it was occupied by Spanish troops.

HAYTI has an area of 9230 square miles, and a population estimated at 550,000, equal to about 60 to the square mile. Coffee is the principal object of cultivation, and the chief exports (mainly sent to Great Britain and the United States) are coffee, cacao, mahogany, and logwood. About nine-tenths of the inhabitants were estimated by Major Stuart, formerly British Consul at Port-au-Prince, to be Negroes, and the remaining tenth chiefly mulattoes. Those of European descent are very few in number. The prevailing language nevertheless is a corrupt French. The capital of the republic is Port-au-Prince (about 20,000), situated on a large bay, and possessed of an excellent harbour. By the terms of the constitution of 1867 the legislative power rests in a National Assembly, divided into two chambers, called the Senate and the House of Commons. The latter is elected by the direct vote of all male citizens for the term of three years, while the members of the Senate are nominated for two years by the House of Commons, from a list presented by the electoral colleges.

French settlers landed on the territory now forming the republic of Hayti in 1630, but for more than thirty years they were merely a band of buccaneers. In 1664 the settlement was made a French colony, and a governor was appointed, and from that time this portion of the island prospered till the French Revolution broke out in 1789. At that time, however, the coloured population rose in rebellion against the whites, and since then the territory has been the scene of constant trouble. In 1803 the French were finally expelled, but the career of the independent state that was then formed has not been such as to promote the general prosperity, and the finances of the state are consequently in utter disorder.

SOUTH AMERICA.

South America is a vast peninsula of a triangular form, with its apex south, extending in length from lat. 12° 30′ N. to Cape Horn, in lat. 55° 59′ S. East to west it extends from 34° 47′ W. to 81° 31′ W. Its greatest length, from north to south, is 4800 miles; its greatest breadth, from east to west, between San

Roque in Brazil and Punta Pariña in Peru (the greatest breadth of continuous land in the entire American continent), 3230 miles. The total area, including the Falkland Islands, is about 6,855,000 square miles, or approximately five-thirteenths of the whole area of the New World. The length of the coast-line is estimated at 15,700 miles, or about one mile of coast for every 437 square miles of surface.

PHYSICAL FEATURES.—As in North America by far the most important mountain system is that which runs parallel to the coast on the Pacific side, and which is here called the Andes (Cordilleras de los Andes). This system stretches in one continued chain of 4180 miles in length in a straight line, and 4360 when measured along the highest part of the system, commencing at the Straits of Magellan or Magalhaens, and ending at the Isthmus of Panama. It is of inconsiderable width, but attains great elevations, ranking in this respect next to the Himálaya Mountains; the highest peak, Illampu or Sorata in Bolivia, being, according to a recent survey, 24,806 feet high, while Sahama in Peru is 23,010 feet high. At the eastern base of this mountain system a wide and remarkably level plain, or rather series of plains, reaches from one extremity of the continent to the other, at an elevation generally less than 1000 feet above sea-level. At some places it extends to the Atlantic coast, but at others it is cut off from that coast by higher elevations, which in some cases attain the rank of mountains. It includes three wide expanses generally reaching in height to less than half the limit previously mentioned. One of these lies along the Paraná, especially on the west, and extending south from that river to the southern extremity of the continent. It forms in the north the Pampas of La Plata and in the south the Patagonian desert. The second lies on both sides of the Lower Amazon from about 67° W., and forms the Selvas or Silvas of the Amazon; and the third, which is by much the smallest of the three, lies principally on the west of the Orinoco and forms the Llanos of Venezuela and Colombia. Of the secondary mountain systems just referred to one is that of Parime or Parima, also called the highlands of Guiana, consisting of numerous irregular groups of mountains scattered over a low table-land separating the plains of the Lower Orinoco from those of the Rio Negro and the Amazon. The only other separate system of importance is that of Brazil, which consists of two great ranges running parallel to the coast, at various but not very great distances from the sea, and of numerous branches stretching far into the interior, and crossing the country in different directions. The higher mountains of Brazil extend generally, like the Andes, from south to north; those of the interior form a ridge, whose chief direction is from east to west. The highest chain of the system is the Serra de Espinhaço, which culminates in a peak of 9000 feet or upwards.

There are altogether upwards of thirty volcanoes in South America in a state of activity. They all belong to the Andes, and consist of three separate and distinct series; the series of Chile, of Peru and Bolivia, and of Quito. The loftiest of these burning mountains is Gualateïri in Peru, one of the peaks of the colossal Sajama or Sahama group; height, 21,960 feet. The heights of the others vary from 13,000 to 20,000 feet.

The plains of South America stretch for many hundreds of miles without exhibiting the slightest perceptible inequality. The Pampas of La Plata are partly desert and partly composed of grassy plains occupied by thousands of wild cattle and horses, which find there inexhaustible supplies of food. The Selvas of the Amazon are covered with wood (hence their name), and so densely that the country can be penetrated only by sailing up the river or its tributaries. They extend 1500 miles along the Amazon, varying in breadth from 350 to 800 miles. The heat is suffocating in the deep and dark recesses of these primeval forests, where not a breath of air penetrates; while a death-like stillness prevails from sunrise to sunset, when the forest suddenly resounds with the loud and wild cries of the animals by which it is inhabited. At midnight a profound silence again prevails, and continues till dawn, when the discordant uproar recommences. The Llanos of Venezuela and Colombia are so flat that frequently there is not an eminence a foot high in 200 or 300 square miles. In the time of Humboldt they were nearly destitute of trees, excepting the banks of the Orinoco, but recent travellers report that they have since become partly covered or at least plentifully sprinkled with low trees, a consequence of a great diminution that has taken place in the number of the cattle, which ate up and otherwise destroyed the young tree shoots. The Llanos present very different aspects at different seasons of the year. Soon after the termination of the rainy season in October, and the subsidence of the swollen rivers, they are clothed with fine grass, affording abundant pasturage to the countless herds with which they are covered. But in the dry season, namely, between November and February, they are converted into desolate wastes; all vegetation is destroyed, the waters are dried up, and the earth is rent in deep and wide crevices.

The desert of Patagonia is for the most part composed of sandy sterile dunes, intermixed with stones and gravel; occasionally diversified by huge boulders, tufts of brown grass, low bushes armed with spines, brine lakes, incrustations of salt white as snow, and by black basaltic platforms.

RIVERS.—The principal rivers of South America are the Amazon, the Orinoco, and the Plata. The first is the largest river on the globe. If the Marañon be taken as its head-water, it rises on the table-land of Pasco, in Lake Lauricocha, and, after a course of about 3700 miles, falls into the Atlantic at the equator, in about lon. 51° W. The area of its basin, not including that of the Tocantins, is estimated at 2,330,000 square miles, which is more than a third of all South America, equal to two-thirds of all Europe, and half as large again as our whole Indian empire. Some of its tributaries are themselves gigantic rivers, so that the Rhine would as a tributary of this stream be only of the fourth or fifth rank. It is navigable for vessels of the largest size up to the confluence of the Marañon and Ucayale. The Orinoco rises on the western slopes of the highland of Guiana. Its length is estimated at about 1500 miles. The affluents of the Orinoco are numerous, and some of them very large streams. About twenty miles below Esmeralda the main stream of the Orinoco forms the bifurcation rendered celebrated by the explorations of Humboldt. The stream, which

is there two-thirds of a mile broad, divides and sends one-third of its waters southwards by the Cassiquiari to the Rio Negro, the largest affluent of the Amazon on its left bank. More recent explorations have led to the discovery that a second connection is established between the Orinoco and Amazon higher up; the Inirida, a tributary of the former river, being found to be connected with the Guiania, a tributary of the Rio Negro. And these are not the only bifurcations belonging to the same region; for the Guiania and Cassiquiari are connected first by the Tiriquini and Mamuni, and further up by the Conrochite and Caño Desecho. The Plata (Rio de la Plata) is not so much a river as an estuary formed by the confluence of the rivers Paraná and Uruguay. Notwithstanding its great breadth, its navigation is difficult, owing to its shoals and strong irregular currents. Its waters are so turbid that they tinge the sea visibly for 200 miles from the embouchure. The rivers of the equatorial region present curious differences in colour. According to Wallace they may be divided into three groups—white-water, blue-water, and black-water rivers. The exact colour of those of the first-mentioned group is described as a pale yellowish olive, and this colour, says Wallace, seems not to depend entirely on free earthy matter but rather on some colouring matter held in solution, since the waters still retain the same colour in lakes and inlets where they can deposit all their sediment. The main stream of the Amazon is itself of this colour, but the whitest of all appears to be the river which owes its name to that circumstance, the Rio Branco (White River), a tributary of the Rio Negro or Black River. This latter stream is again the most remarkable example of the black-water rivers, which are first met with above the Madeira, and the colour of which is regarded by Wallace as in all probability due to a solution of decaying leaves, roots, and other vegetable matter. Finally, the blue-water rivers are simply streams which have retained their clearness through flowing in a rocky or sandy bed.

LAKES.—The lakes of South America of any considerable size are few, and, with the exception of Lake Titicaca, are rather vast morasses than lakes; while the large inland water in Colombia, called the Lake of Maracaybo, is a mere inlet from the Caribbean Sea, and not a true lake. The Lake Titicaca is situated near the north-west frontier of Bolivia or Upper Peru; it covers an area of about 4000 square miles, is elevated 12,600 feet above the sea, and is said to be 120 fathoms deep in many places. Some of the temporary lakes, alternately inundated and dry, or in a marshy state, cover, when flooded, vast tracts of country; that of Xarayos, on both sides of the Paraguay and nearly in the centre of the continent, extends over 36,000 square miles. On the elevated mountain valleys and table-lands of the Andes there are many small lakes of the purest blue and green colours, and some of them intensely cold, being near the line of perpetual congelation.

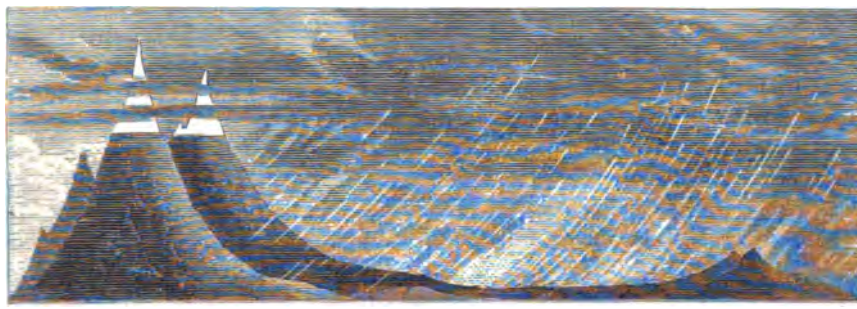
GEOLOGY AND MINERALS.—Granite forms the base of the whole continent, having gneiss here and there associated with it, but mica schist is the most common of the crystalline rocks. Quartz rock is much developed, generally mixed with mica, and rich in gold and specular iron. The Pampas of Buenos Ayres are entirely alluvial. Granite prevails to the extent of 2000 miles along

the coast of Brazil, and, with syenite, forms the base of the table-land. The superstructure of the latter consists of metamorphic and old igneous rocks, sandstone, clay-slate; limestone, in which are large caverns with bones of extinct animals; and alluvial soil. Porphyry and red sandstone abound all over the Andes. Peru and Bolivia were at one time the principal sources of the silver-supply of the world, and still produce great quantities of that metal, although their rank among silver-producing countries has greatly declined. Gold has been found since early in the seventeenth century in Brazil, and is still obtained there in considerable quantity, and the same country possesses also rich diamond-fields. Gold is likewise produced in Colombia and Chile, and the latter state is likewise rich in silver and copper.

CLIMATE.—Although two-thirds of the surface of South America lies within the tropics and no part of it ascends in the southern hemisphere to a higher latitude than that of Edinburgh in the northern hemisphere, the climate of the continent presents a very interesting study on account of the variety of conditions affecting it that prevail in different parts. As regards temperature this variety is less noticeable than in the case of the distribution of the rainfall, and on the head of temperature the fact most worthy of note is that there are no localities in South America so hot as we should be led to expect from its geographical position—a result produced by the operation of the trade-winds, by the atmospherical influences of the huge chain of the Andes, and by other physical causes. In the plains of Caracas, the hottest region of South America, the temperature of the air during the day is only 98° in the shade; while it rises to 112° in the sandy deserts around the Red Sea. At Rio de Janeiro the mean temperature is only about 70°. At Lima the temperature varies from 53° to 82°, but the mean for the whole year is only 72°. At Buenos Ayres the mean annual heat is 63°; and in the Straits of Magellan the temperature of the warmest month does not exceed 43° or 46°, while snow falls almost daily. On the west coast glaciers descend to the water's edge at the parallel of 46° 30′ S., a latitude corresponding nearly to that of La Rochelle in France in the northern hemisphere. The narrowness of the continent towards the south, the immense tracts of ocean which lie on either side of it, and its exposure to the rigours of the polar regions, sufficiently account for this inclemency.

With respect to the rainfall of South America it deserves to be pointed out first of all that the whole of the east coast within the tropics is exposed either constantly or at certain periods of the year to the north-east or south-east trade-wind, and that as these winds for the most part blow inland either over plains or over tracts of comparatively moderate elevation, they are able to carry the greater part of their moisture across the continent till they meet with the barrier of the Andes, where the moisture is at last condensed and precipitated on the eastern slopes of that range. It is owing to this fact that the continent receives sufficiently copious supplies of water to feed such magnificent rivers as the Amazon and the Paraguay with their tributaries. When we look at the rainfall more in detail we find differences in its distribution worthy of attention even within the limits of the region east of the Andes to which the last general

observation referred. In the extreme north, the northern parts of Colombia and Venezuela, the phenomena of wind and rain are similar to those which prevail in the West Indies. During more than half the year (from November to May or June) the north-east trade-wind blows with considerable strength and dry weather prevails, but at the end of that time the trade-wind slackens and there follows a period of calms and irregular west winds accompanied by heavy rains. Further inland, in the Llanos, the succession of meteorological phenomena is the same; only the rains commence earlier and last longer, and are much heavier. Even there the period of constant rains lasts only from May to October, but the occasional rains which are sufficient to bring about that complete change in the aspect of nature already referred to may occur as early as February. In Guiana winds are more or less easterly all the year round, in spite of which, owing to the more tropical situation of the country and the presence of extensive



Section of South America.—Rain brought from the Atlantic.

forests, the annual rainfall is much greater than in the district to the north-west, amounting at Cayenne to about 125 inches, while at Caracas it is only about 31. On the Lower Amazon a strong east wind blows up the river from about August to January, and as this wind is of the nature of a trade-wind strengthened in consequence of the great rarefaction of the air in the Amazon valley at that period, it is remarkably dry. When it ceases to blow the period that follows is one of calms and westerly winds, with an abundant rainfall. During the calms the afternoon rains characteristic of tropical seas in the zone of calms are frequent, as they are in general in the tracts adjoining the equator in South America; and the westerly winds, blowing from the Selvas or forests of the Amazon basin, come heavily charged with moisture in consequence of the enormous evaporation that takes place there. The higher we ascend the Amazon the longer do we find the rainy season to last, and in the upper regions of that river it lasts for ten months or even the whole year. To the south of the Amazon there is only a narrow strip adjoining the coast where the rains are abundant. At Rio de Janeiro the annual rainfall is about 50 inches. Behind this strip the mountains intercept the rains from the Atlantic, so that the somewhat elevated plains of the interior of Brazil (the Campos) are by no means plentifully supplied with rain, more especially during the southern winter months —from March or April onwards. Of the district adjoining the Bolivian Andes

very little is known, but regarding the north-western provinces of the Argentine Republic it is known that they are almost rainless. In the southern Pampas (the region west and north-west of Buenos Ayres) recent observations seem to have overthrown the idea that there is here a regular alternation of rainy and dry seasons. Throughout the region southerly and northerly winds succeed one another, and violent rains are followed at irregular intervals by protracted droughts. Finally, so far as the region east of the Andes is concerned, Patagonia is an almost rainless desert. The winds that blow over it from the Atlantic bring very little moisture, and the winds from the Pacific are deprived of all their moisture by the Andes before they sweep over the Patagonian plains.

Passing now to the strip west of the Andes we meet with a striking contrast, as regards the distribution of rain, to that part of the continent with which we have just been dealing. While the plains of Patagonia are so dry, the mountains, coasts, and islands on the west of those plains are deluged by frequent rains, which fall principally in the winter months, and are chiefly brought by north-west winds from the warmer parts of the Pacific. At Ancud on the island of Chiloe the annual rainfall is upwards of 130 inches, while at Punta Arenas on the Straits of Magellan behind the mountains it is only 22 inches. The further north we go the smaller the annual rainfall becomes, until at Santiago the number of inches of rain in the year is considerably under 20; and another sign of the smallness of the annual precipitation in this district is to be found in the fact that the snow-line on Aconcagua, a little to the north-east of Santiago, is as high as at the equator, while it descends very suddenly about the parallel of 40° S. The strip between 30° and 40° S., like the south-western parts of the Cape Colony, which are similarly situated and lie within the same parallels of latitude, receives its rains almost entirely in the course of the southern winter. To the north of this strip of winter-rains there follows another strip reaching to about 4° S. on which rain hardly ever falls at all, and which accordingly is quite desert except where a few transverse valleys bring water from the mountains. The explanation of this phenomenon is without doubt connected with the existence of a very cold current (the Humboldt current), which here passes along the coast from north to south, causing the evaporation in this part of the ocean to be comparatively slight. As soon as the current leaves the coast the climate changes as if by magic, and we find ourselves at once in the region of frequent and abundant tropical rains. (See PERU.)

VEGETATION.—Possessing, as we have seen, so great a variety of climate South America as a whole cannot be said to have a vegetation marked by any special character. Any division of the vegetation of the continent into regions must follow to a large extent the distinctions of climate that have just been indicated, and the division adopted by Grisebach accordingly reminds us constantly of the climatic differences to which attention has already been drawn. The whole of the northern portion of the continent except the Andes region, the portion embracing Guiana, Venezuela, and the coasts of Colombia and Ecuador down to the commencement of the rainless tract (about 4° S.) on the west coast, is referred by him to one region, in which, however, there is a contrast between

the forests of the coasts and of the highlands of Guiana, and the treeless plains on the Orinoco and elsewhere. In this region Guttiferæ, Leguminosæ, Rubiaceæ, and some other orders prevail, and a great variety of cactuses often of very singular form are in many places conspicuous. The Selvas of the Amazon, which may be said to extend roughly from about 2° N. to 7° S. and to reach back to the base of the Andes, form another distinct region. It is the region in which the vegetation of South America attains its most vigorous development. The variety of foliage trees in the forests is astonishing, and nowhere does the palm family show an equal number of species. (See BRAZIL.) The greater part of Brazil south of the Selvas forms with Paraguay a third botanical region, which, like the northern one, is divided into two sections distinguished by the presence and absence of forests. The eastern section to the height of about 4000 feet above sea-level is, in consequence of the abundant rains it receives, covered with dense forests, whereas the Campos in the interior, where the rainfall is deficient, are devoid of forests except where there is running water to supply the want of a sufficiently abundant supply of rain. In the first section of this region palms are still numerous, but the number of species belonging to this family on the Campos is small. The region of the Pampas, south-west of the Brazil region, is almost destitute of trees, and the poverty of its flora generally forms a striking contrast to any of the regions hitherto mentioned. The plants to be met with steadily diminish in number from north to south, and about 40° S. the chief forms of vegetation are coarse straggling grasses, thistles, and the like. Here and there may be seen groups of stunted mimosas, and cactuses are scattered over the whole plain. Of the latter some (such as the *Opuntia Darwinii*) are conspicuous by the splendour of their flowers, and in some years they are the only plants which survive the terrible droughts. Towards the extreme south a richer grass begins to cover the surface, and beyond the straits the vegetation has the same character as on the islands off the south-west coast.

On the west of the Andes south of the termination of the northern forest region the distribution of the forests, like that of the rainfall, is the opposite of what we have found in the east of the continent. From about 4° to 30° S. the western slopes of the Andes are destitute of trees, and even to about 33° thinly wooded, but from that limit southwards these slopes and the islands off the coast are clothed to a certain height with dense forests. The height to which these forests reach diminishes, and the character of the trees composing them changes, as we go southwards. In the north there are still many tropical specimens, but these gradually give place to the trees of temperate climates, among which conifers predominate. Extensive woods of single species (among which the peculiar species of Araucaria and Podocarpus deserve to be specially mentioned) cover wide areas; and in the extreme south we come to a region in which the characteristic and almost sole tree is the evergreen beech. Behind the treeless western slopes of the Andes as well as the forest region on the north-west coast lies a region of elevated plateaux, on which snow falls in winter. Here also trees are absent, but there is an Alpine flora of shrubs and bushes. Finally the eastern slopes of the Andes within the tropics form a separate region, to which Grisebach

gives the name of the cinchona region from the fact that the cinchona ascends these slopes to a greater or less height along its whole length.

ZOOLOGY.—The most formidable beast of prey having its home in South America is the *Felis onca* or jaguar, which is, however, equalled in ferocity, though not in size and strength, by the ocelot, another native of South America, which like the jaguar is found even in the north of Mexico. The puma or American lion is also a native of South America, but its range extends still further than that of either of the first-mentioned carnivora in the northern half of the New World. Apes and monkeys abound in the tropical forests of the latter, but are an inferior race to those of the Old World. The animals most characteristic of South America are the tapir, sloth, ant-eater, and armadillo, and the domesticated Camelidæ, the llama, alpaca, and vicuña. The llama also runs wild under the name of the guanaco. Amongst the winged mammals is the vampire, an enormous bat, which lives on blood, attacking the largest animals, and even man, when asleep. These dangerous creatures are fortunately not numerous, and are almost wholly confined to Guiana, Colombia, and Brazil. Of the birds of South America the most remarkable for size is the condor, a species of vulture. The largest specimen yet met with measured somewhat less than 14 feet between the extremities of the wings, though they rarely exceed 11. They inhabit the most inaccessible parts of the Andes. South America possesses, in common with other countries, eagles, vultures, falcons, and other birds of prey. It also possesses many birds of exquisite plumage, among these the tiny humming-bird and the brilliant curucui, already mentioned as belonging to Central America and Mexico. Parrots are remarkably abundant, and, in a monograph on the distribution of parrots contributed by Otto Finsch to Petermann's *Mittheilungen*, it is pointed out as a curious circumstance that, while, for example, the American apes are throughout different from those of Africa and Asia, one would search in vain for a constant mark of distinction among the parrots. Over the southern plains roams the American ostrich (Rhea), which differs essentially from the true ostrich in having three toes instead of two, as well as in its colour and the appearance of its feathers. The seas, lakes, and rivers of South America abound with fish of various kinds; and many of the rivers, in the tropical regions, with enormous lizards and alligators. The electric eel is found in the lakes of Caracas. In the marshes and swamps of tropical America the boa constrictor is found of enormous size. Ants, termites, and locusts swarm, the last-mentioned to a frightful extent, especially in Buenos Ayres and some of the neighbouring provinces, sometimes covering the ground for a distance of 200 miles, devouring every green thing, even the grass, to the very roots. The mosquito is also a grievous infliction, particularly in the basins of the Amazon and the Orinoco, but it is a noteworthy circumstance that it is absent from all the black-water rivers. The chigoe, another much dreaded insect, which we have already met with in Central America and the West Indies, abounds in the same localities. Besides the native domesticated animals already mentioned there are now, as in North America, the domestic animals of Europe, and immense herds of horses and cattle roam wild over the treeless plains.

PEOPLE.—See the general account of America and the notices of the several countries.

POLITICAL DIVISIONS.—The following table gives the area and population of the political divisions of South America. The areas are derived from the *Erdbevölkerung*, and differ in many cases from those given in the official reports of the different states, the figures in these cases being the results of planimetrical calculations made by the editors of that statistical publication. If the official figures were accepted in all cases the result would be a total differing considerably from the whole area of the continent as ascertained by planimetrical calculation on the basis of the maps of the British Admiralty.

	Area in square miles.	Population.
Brazil, ...	3,219,135	11,100,000
Guiana, ...	178,376	336,800
Venezuela, ...	439,255	1,784,000
Colombia (exclusive of Panama), ...	289,143	2,775,000
Ecuador (with the Galapagos), ...	251,336	1,146,000
Peru, ...	432,431	3,050,000
Disputed territory in the east of Peru,	72,435	
Bolivia, ...	500,895	2,325,000
Chile, ...	124,121	2,400,000
Argentine Republic and Patagonia, ...	1,178,310	2,400,000
Uruguay, ...	72,173	440,000
Paraguay, ...	92,000	294,000
Falkland Islands, ...	6,500	1,400
Total (in round numbers), ...	6,856,000	28,000,000

BRAZIL.

The Empire of Brazil occupies the greater part of the territory east of the Andes, and embraces not much less than half the whole area of South America. It is considerably more than a half greater than European Russia including Finland, and nearly thirty-six times the size of Great Britain. The boundaries of the empire are now fixed by treaties with most of the frontier states, though they are still unsettled in the case of at least two of the European colonies on the north—French and British Guiana. The treaty fixing the boundary with Uruguay in the south was concluded in 1851, that with the Argentine Republic in 1857, that with Peru in 1858, with Venezuela in 1859, with Bolivia in 1867, and with Paraguay in 1872. According to the Treaty of Utrecht (1713) French Guiana is made to extend on the south as far as the river St. Vincent Pinzon, but the dispute is as to what river is meant by this name, the French claiming that it is the Araguari, more than a hundred miles further south than the Oyapok, which is at present taken as the provisional boundary between French Guiana and Brazil.

Brazil is divided politically into 21 provinces, of which there are ten, each exceeding Great Britain in superficial extent. It is, however, very difficult to ascertain accurately the area of the provinces and of the whole empire, the existing data being very unsatisfactory and conflicting. In the following table the areas are the result of planimetrical calculation; the population is that of the census of 1872, in which, however, all the wandering Indians (estimated at about 1,000,000) and some settled communes were omitted:—

Provinces.	Area in sq. miles.	Population.		Total.	Pop. per sq. mile.
		Free.	Slaves.		
Amazonas, ...	732,474	56,631	979	57,610	·07
Pará, ...	443,925	247,779	27,458	275,237	·6
Maranhão, ...	177,567	284,101	74,939	359,040	2
Piauhy, ...	116,527	178,427	23,795	202,222	1·7
Ceará, ...	40,252	689,773	31,913	721,686	18
Rio Grande do Norte, ...	22,195	220,959	13,020	233,979	10·5
Parahyba, ...	28,855	354,700	21,526	376,226	13
Pernambuco, ...	49,575	752,511	89,028	841,539	17
Alagoas, ...	22,584	312,268	35,741	348,009	15
Sergipe, ...	15,093	153,620	22,623	176,243	11·6
Bahia, ...	164,650	1,211,792	167,824	1,379,616	8·4
Espirito-Santo, ...	17,313	59,478	22,659	82,137	5
Rio de Janeiro, ...	26,635	490,087	292,637	782,724	29·5
Municipio Neutro, ...	538	226,033	48,939	274,972	
São Paulo, ...	112,312	680,742	156,612	837,354	7·4
Paraná, ...	85,451	116,162	10,560	126,722	1·5
Santa Catharina, ...	28,633	144,818	14,984	159,802	5·5
Rio Grande do Sul, ...	91,337	367,022	67,791	434,813	4·75
Minas Geraes, ...	221,960	1,669,276	370,459	2,039,735	9·2
Goyaz, ...	288,549	149,743	10,652	160,395	·5
Matto Grosso, ...	532,710	53,750	6,667	60,417	·11
Unenumerated communes, ...	—	—	—	177,813	
Total, ...	3,219,135	8,419,672	1,510,806	10,108,291	3·1

PHYSICAL FEATURES.—The appearance of the coast of Brazil is very different at different places. From its southern point to the island of Santa Catharina, a distance of about 500 miles, it is low, sandy, and intersected by the outlets of numerous lakes or lagoons, which skirt the shores throughout this whole extent. From this point, or from about lat. 27° 30′ S. to lat. 21° 45′ S., 700 miles, the land is very elevated, appearing rugged and mountainous from a distance, but when more nearly approached becoming highly picturesque; its hills being clothed with thick woods, and its valleys with a never-fading verdure. This part of the coast, the most rocky portion of which is between Santos and Cape Frio, may be seen from sea from a distance of 55 miles. From lat. 21° 45′ S., or from about St. João to Bahia, lat. 13° S., 650 miles, the coast is in general low and level. From Bahia to about lat. 4° N., which embraces the whole eastern projection of Brazil, the coast (about 800 miles in extent) is of moderate height, nowhere rising above 30 feet, and is also destitute of harbours, excepting those formed by the mouths of rivers. From this point to the Amazon it is extremely low and marshy. West and north of that river it is sandy, and somewhat higher, though still of inconsiderable elevation. The total length of

the coast-line is about 3800 miles, or about one mile of coast for every 850 square miles of surface. The great indentations of the coast are few in number, but the smaller harbours and inlets are in some parts pretty numerous, and many of the former excellent. The surface of Brazil generally is divided into upland and lowland, in pretty equal portions; the former, which comprises the hilly districts and table-lands, extends over the east, south, and central parts, and has an average elevation of about 2000 to 2500 feet, although at some points it reaches from 4000 to about 9000 feet, such elevations forming the culminating points of continuous mountain chains, which stretch for the most part from north to south. The lowland comprises the Selvas or woody regions, and Llanos or plains and flats; the former lying principally along both sides of the Amazon, and the latter stretching chiefly along the north-east shores.

The most connected mountain-chains of Brazil, and those in which the highest summits occur, are the Serra do Espinhaço, the Serra dos Orgãos or Orgões, and the Serra do Mar. The first originates in Bahia, about lat. 15° S., and, intersecting the province of Minas Geraes, terminates at lat. 23° S. It lies parallel to the coast, and at a distance from it of about 250 miles. Its highest point, so far as is known, is the Pico de Itatiaiossu, the height of which is variously stated by different authorities at 6250, 8900, 9800, and even 10,300 feet. The next highest summit appears to be Itacolumi, which is less than six thousand feet in height. The Serra dos Orgãos (Organ Mountains), so called from the fancied resemblance of its peaks to the tubes of an organ, and the Serra do Mar, which form, in fact, but one chain, the first name being applied to the north-eastern half of the range and the second to the south-western, lie also parallel to the coast, running north-north-east and south-south-west, but at a distance from it of only a very few miles, from about lat. 22° to 27° S. The culminating point of this range, which occurs in the Serra dos Orgãos division, was estimated by Gardner (author of *Travels in Brazil*) at 7500 feet. Hilly regions also extend north and west from these mountain systems through the provinces of Minas Geraes, Pernambuco, Goyaz, and Matto Grosso, but none of the peaks appear to attain any very great elevation. Towards the Rio Paraguay the hills become lower, and terminate on the Bolivian frontier in elevated marshes. In this locality occurs the water-shed between the affluents of the Amazon and La Plata. It is of very inconsiderable elevation; and some of the sources of the Madeira, which falls into the former, and of the Paraguay, the head-stream of the latter, are not more than 3 miles apart, and might easily be joined by means of a canal. The hilly region or table-land extends along the east side of the empire as far north as lat. 3° S., but inland, in Matto Grosso, not further than 12° S., and north of lat. 10° S. the Serra Ibiapaba may be taken as the western limit. This table-land occupies half the empire, together with part of the Argentine Republic and Uruguay, and its average elevation is from 2000 to 2500 feet. Along the Amazon and its affluents the vast plains or Selvas are said to occupy a space equal to six times the size of France. And in this estimate the great plain which stretches between the Serra Ibiapaba and the river Tocantins,

measuring from north to south upwards of 600 miles, and from east to west more than 400, is not included.

RIVERS AND LAKES.—The river system of Brazil is unequalled, perhaps, in any other part of the world for the number and magnitude of the streams of which it is composed, the surface of the whole north-west portion being interlaced with rivers of every length and volume. By far the greater portion of these numberless streams have a northerly direction, and finally find their way either directly or through their principals to the northern shores of the empire. The largest river of Brazil, and the largest though not the longest in the world, is the Amazon, which enters the empire from the west, about lat. 4° 30′ S.; lon. 70° 15′ W. It is navigable to the Brazilian frontier for vessels of the largest size, and together with its tributaries it affords about 30,000 miles of navigation within the limits of Brazil. Of these tributaries the first in order of magnitude are the Rio Negro and Madeira, the former flowing from the north-west, the latter from the south-west; and the next in importance are the Japura on the left bank above the Rio Negro, the Purus on the right bank above the Madeira; and the other large rivers in this portion of the empire are the Tapajos and Xingu, on the same bank below the Madeira, and the Branco, a tributary of the Rio Negro. The independent river next in size to the Amazon is the Rio Francisco, which, after flowing north for about 800 miles, suddenly turns due east, and subsequently south-east, falling into the sea about lat. 11° S. Its total length is about 1800 miles, but there are several interruptions to its navigation, the chief of which is formed by the falls of Paulo, about 170 miles from its mouth. Between the Rio Francisco and the Amazon the principal rivers are the Paranahyba and the Tocantins. The former, which has a length of about 700 miles, flows chiefly through level swampy land, and being without obstruction is navigable for a great distance. The latter from the source of its longest headwater, the Araguaya, has a length of 1200 miles, and falls into the estuary of the Rio Pará, which is connected by channels of communication with the mouth of Amazon. The Araguaya is navigable a long way up, but the navigation of the upper Tocantins is interrupted by falls. Passing along the coast, south from the embouchure of the Francisco, the following considerable rivers occur—the Vazabarris, Itapicuru, Paraguassu, Belmonte or Jequitinhonha, in the course of which there occurs a magnificent series of falls, province of Bahia; Doce, province of Espirito Santo; and the Parahyba do Sul, the southern boundary of the same province. The last-mentioned river is navigable for steamers 60 miles up. In this enumeration of the rivers having their embouchures on the east coast of Brazil we have omitted an immense number of smaller streams, perhaps not many below a hundred. In the southern portion of the empire occur the large rivers Uruguay, Paraguay, and Paraná, which belong only in part to Brazil, but which have numerous considerable tributaries, some wholly and some partly within the empire. The Uruguay rises on the north slope of the Serra Geral in the province of Rio Grande do Sul, and during part of its course forms the boundary between that province and the Argentine Republic, until in lat. 30° S. it quits Brazilian territory. The Paraguay has its sources in the central high-

lands of Matto Grosso, whence it flows nearly due south, quitting the Brazilian territory at lat. 21° S. The Paraná rises in the hilly district of the province of Goyaz, not far from the sources of the Tocantins, although their subsequent courses are nearly in direct opposition. The Paraná forms, throughout a portion of its course, the boundary between the Brazilian territory and Paraguay, quitting the former about lat. 25° 40′ S. Of these three great rivers of the south by far the most important is the Paraguay, which is the great channel of communication with the south for Brazil. Large steamers can ascend from its mouth in the La Plata to Curumba in the province of Matto Grosso, and the navigation is continued thence by smaller vessels to Cuyaba on the São Lourenço, the principal

Souré and Salvaterra on the Igarapé, where it falls into the Rio Pará.

tributary of the Paraguay. The navigation of the Paraná only begins at the falls of Urubupunga 40 miles below the confluence of the Rio Grande (or Paraná) and the Paranahyba, and is interrupted on the frontier of Paraguay by the cataract known as the Salto of Guayra, where the river, which a short distance above that point is about two and a half miles in breadth, is confined to a rocky gorge about 65 yards broad, and rushes over a bed inclined at an angle of about 50°. The navigation of the Uruguay begins only a short distance above the point where it quits Brazil, and is again interrupted lower down.

Most of the rivers of Brazil periodically rise above their normal level and overflow the adjoining valleys and plains for a considerable distance, so as to render them in many cases uninhabitable. This rise takes place on different rivers at different times. The Amazon (in which the rise amounts to upwards of 50 feet) and Paraguay both begin to swell with great regularity, and both

attain their highest level in June, while the Paraná, whose rise is very irregular, attains its highest level in December.

Although unrivalled in the number and magnitude of its rivers, Brazil has comparatively few lakes of any great extent. The largest is the Lagoa dos Platos, in the province of Rio Grande de São Pedro, the most southern of the Brazilian provinces; it is 150 miles in length, and 35 miles in breadth at the widest part, and is separated from the sea only by a narrow strip of land, across which it discharges its water into the ocean by a channel called the Rio Grande.

GEOLOGY AND MINERALS.—Granite prevails to the extent of 2000 miles along the coast of Brazil, and, with syenite, forms the base of the table-land. The superstructure of the latter consists of metamorphic and old igneous rocks, sandstone, clay-slate, limestone (in which are large caverns, with bones of extinct animals), and alluvial soil, of which the north part of the empire is almost wholly composed. On the Amazon there exists a series of fossiliferous rocks belonging to the Upper Silurian, Devonian, and carboniferous systems, and carboniferous rocks have been found also in the province of Paraná. The basin of the Amazon seems to have been a sea-bottom even in the tertiary period, and then to have been gradually filled and elevated. Coral-reefs occur off various points of the coast, and off Bahia, Pernambuco, and other points there is another kind of reefs formed of originally loose stones heaped together and consolidated by the action of the sea.

The mineral wealth of Brazil is considerable, and includes gold, silver, platinum, and iron, diamonds, topazes, and other precious stones, besides coal. Gold has been obtained in Brazil since the early years of the seventeenth century, when gold deposits were found in alluvium on the Serra de Jaragua in the province of São Paulo. Afterwards other similar deposits were found in the provinces of Matto Grosso, Goyaz, and elsewhere, and by means of washings increasing quantities of the precious metal were produced till after the middle of the last century, when the alluvial deposits began to show signs of exhaustion. Since the middle of the present century gold has been chiefly extracted from gold-bearing rocks, but though it is still the most important mineral product of Brazil the average annual production (about £230,000) is only about a ninth part of what it was in the most productive period of last century. Next in importance are diamonds, which are chiefly found in the so-called diamond district of Minas Geraes, in the Diamantino district of the province of Matto Grosso, and in the Serra de Sincora in the province of Bahia. The diamonds are chiefly found in the sand of rivers, but are also scattered over the ground. The government receives one-fifth of the total value of all the gold and diamonds found in the country. Platinum is pretty widely distributed in the gold-bearing alluvium, and so also is palladium, which is now made an object of search along with gold and platinum by the mining companies. To come down to more homely minerals, iron ores of all kinds and in some cases of excellent quality are abundant, and some of the deposits very large and thick (as at São João d'Ipanema in São Paulo, and in the district of Villarica in Minas

Geraes), and coal has been found in considerable quantity in the provinces of Santa Catharina and Rio Grande do Sul. Mines of silver and copper have also been opened, and tin and zinc have been discovered in Minas Geraes and Ceará.

CLIMATE.—The general distribution of the rainfall in Brazil has already been sufficiently indicated in the general account of South America, and we will now therefore merely add one or two particulars concerning the total amount of the annual rainfall, which differs widely in amount in different localities. At Rio de Janeiro, a little to the north of the Tropic of Capricorn, and accordingly towards the south of that part of the coast which is exposed all the year round to the south-east trade-wind, the mean annual rainfall is 50 inches or upwards, while at Pernambuco in about lat. 8° S., and consequently towards the north of that region, the average annual amount of rain is about 100 inches, and at Fortaleza, lying still further north (about 3° 30′ S.), but on the part of the coast trending north-westwards and thus not directly exposed to the trade-winds, the mean annual rainfall is about 56 inches. Another cause which lessens the rainfall in the province of Ceará, in which Fortaleza lies, as well as in the adjoining provinces of Rio Grande do Norte and Parahyba, is the fact that the moisture of the trade-winds that blow across the land and might bring rain to these provinces is intercepted by the mountains that run along the south of Ceará and Parahyba. These provinces are consequently liable to suffer at times from drought, as they did very severely in 1876–78 owing to a succession of dry years. At Fortaleza in 1877 the rainfall was under 14 inches. At Pará on the Rio Pará in the Amazon region (about 1° 20′ S.) at least 10 inches of rain fall in each month from February to May. As regards temperature Brazil, being mainly within the tropics, enjoys the freedom from extremes characteristic of tropical countries, and owing to the narrowness and superficial configuration of the continent to which it belongs it has the advantage of other tropical countries in the comparative coolness of its climate. Within the Amazon basin the mean range of the thermometer appears to be from about 75° to 90° Fahr. At Rio de Janeiro the mean temperature of the year is about 70°, that of the hottest month about 77°, that of the coldest about 60°. It must be mentioned, however, that considerable uncertainty attaches to the statistics both of temperature and rainfall for Brazil, as the observations do not yet seem to have been extended over a sufficiently long period to determine the average, and in general there is as yet a great deficiency of meteorological observations for the empire. On the table-lands and mountains of the interior the temperature is so much reduced that, for example, near the sources of the São Francisco, about lat. 20° S., water freezes. In the southern parts of Brazil, in consequence of the gradual narrowing of the continent, the climate is of an insular character—cool summers and mild winters. As a whole the climate of Brazil, though enervating except in the extreme south for northern constitutions, is delightful, diffusing and maintaining a perpetual summer. Only the marshy depressions bordering on some of the rivers are positively unhealthy.

VEGETATION, AGRICULTURE, &c.—It is in its boundless forests that the

vigour of the vegetative power in Brazil is exhibited in its most imposing form. No language, it has been said, can describe the glory of the Brazilian forests—the endless variety of form, the contrast of colour and size, the largest trees bearing brilliant blossoms of every hue, and clothed with a drapery of curious epiphytes and parasites (orchids, Piperaceæ, and Aroideæ) and festoons of climbing lianas (chiefly bignonias and Malpighiaceæ), among which the banisteria is conspicuous. A single tree in these regions bears a greater variety of plants, down to mosses, than grow over a wide area in the temperate zone; while thousands of trees of a diameter of not less than from 8 to 12 feet stand so close together that it is hardly possible (the intervals being filled up with an undergrowth of plants) to clear a passage between them. But in reading travellers' descriptions of the gorgeous scenery and strange sights of tropical countries it is well to bear in mind the observations of Mr. A. R. Wallace on the first impressions made by such regions. The naturalist confesses that on the whole he was disappointed by his first impressions on landing in the Amazon region on the occasion of his first excursion beyond the limits of Europe. "The weather," he says, "was not so hot, the people were not so peculiar, the vegetation was not so striking, as the glowing picture I had conjured up in my imagination, and had been brooding over during the tedium of a sea-voyage. And this is almost always the case with everything but a single view of some one definite object. A piece of fine scenery, as beheld from a given point, can scarcely be overdrawn; and there are many such, which will not disappoint even the most expectant beholder. It is the general effect that strikes at once and commands the whole attention: the beauties have not to be sought, they are all before you. With a district or a country the case is very different. There are individual objects of interest, which have to be sought out and observed and appreciated. The charms of a district grow upon one in proportion as the several parts come successively into view, and in proportion as our education and habits lead us to understand and admire them. . . . Thus it is that travellers who crowd into one description all the wonders and novelties which it took them weeks and months to observe, must produce an erroneous impression on the reader, and cause him, when he visits the spot, to experience much disappointment. As one instance of what is meant, it may be mentioned that during the first week of our residence at Pará, though constantly in the forest in the neighbourhood of the city, I did not see a single humming-bird, parrot, or monkey. And yet, as I afterwards found, humming-birds, parrots, and monkeys are plentiful enough in the neighbourhood of Pará; but they require looking for, and a certain amount of acquaintance with them is necessary in order to discover their haunts, and some practice is required to see them in the thick forest, even when you hear them close by you." (*Travels on the Amazon and Rio Negro.*) On the other hand Mr. Wallace's reference to pieces of fine scenery "which will not disappoint the most expectant beholder" is abundantly confirmed by the reports of many travellers. One of the authors of *Brazil and the Brazilians* writes: "In the months of April and May . . . only the autumnal tints of our gorgeous North American woods can compare with the sight of the forest

of the Serra dos Orgoes. Then the various species of the Laurus are blooming, and the atmosphere is loaded with the rich perfume of their tiny snow-white blossoms. The *Cassiæ* then put forth their millions of golden flowers, while, at the same time, huge trees—whose native names would be more unintelligible, though less pedantic, than their botanic terms of *Lasiandra*, *Fontanesia*, and others of the *Melastoma* tribe—are in full bloom, and, joining rich purple to the brightest yellow, present, together with gorgeously clothed shrubs, 'flowers of more mingled hue than her [Iris's] purpled scarf can show.' From time to time a silk-cotton-tree (the *Chorisia speciosa*) shoots up its lofty hemispherical top, covered with thousands of beautiful large rose-coloured blossoms, which gratefully contrast with the masses of vivid green, purple, and yellow, that clothe the surrounding trees. Floral treasures are heaped on every side. Wild vines, twisted into most fantastic forms or hanging in graceful festoons,—passion-flowers, trumpet-flowers, and fuchsias in their native glory,—tree-ferns, whose elegance of form is only surpassed by the tall, gently-curved *palmito*, which is the very embodiment of the line of beauty,—orchids, whose flowers are of as soft a tint as the blossom of the peach-tree, or as brilliant as red spikes of fire,—curious and eccentric epiphytes draping naked rocks or the decaying branches of old forest monarchs,—all form a scene enrapturing to the naturalist, and bewildering with its richness to the uninitiated, who still appreciate the beauty and the splendour that is scattered on every side by the Hand Divine. . . . In the province of *Minas Geraes*, from a commanding point, I once beheld the magnificent forest in bloom; and, as the hills and undulating plains stretched far away to the horizon, they seemed to be enveloped in a fairy mist of purple and of gold."

The most extensive area of primeval forest in Brazil, probably in the world, is that which fills the connected basins of the Orinoco and Amazon. On the Lower Amazon, where the rainy season lasts only from February to July, broad savannahs occur here and there, but above the inflow of the Rio Negro, where the rains extend over ten or twelve months, the forests are almost absolutely continuous. A distinction has been pointed out between the forests of that part of the Amazon basin which is subject to inundation (the *igapo*) and those of the portion beyond the limit of the rising waters (the *ete*). In the former the foliage trees are comparatively low and are overtopped by the higher palms, epiphytes are wanting, lianas few, and blossoms insignificant and inconspicuous, while in the latter the tropical flora is developed in all its richness. On the banks of the Amazon grow thickets of a tall kind of reed (*Arundo saccharoides*), which grows to the height of from 16 to 20 feet, while in the ete the streams are bordered by bamboos. But it is not in the plains alone that this gigantic vegetation is met with; the sides of the mountains overlooking the east coast are clothed with dense primeval forests similar in character to those of northern Brazil and reaching down to the mangrove swamps along the coast, and in these there is even a greater wealth of blossom than in the forests of the Amazonian plains. (It is to these forests, it will be observed, that the description above quoted applies.) In both regions palms are very abundant. Nowhere else, indeed,

is such a variety of members of this family to be seen as in the Amazon basin. Some of them attain a height of from 60 to 100 feet; others are only from 12 to 16 feet high; while others are quite stemless, exhibiting only a rosette of leaves close to the ground. Among the stateliest of the palms are *Iriartea exorrhiza* (pashiuba palm), remarkable for its conical mass of cylindrical roots standing above ground, several species of Œnocarpus, *Attalea spectabilis*, *Maximiliana princeps* (the maja palm), and the coco-nut palm. Most of these are confined to the Amazon region, but the *Attalea spectabilis* is found both there and in the maritime forests, and it is on the coast that the coco-nut palm attains its greatest size. Unlike the majority of palms the *Attalea spectabilis* and *Maximiliana princeps* sometimes

Entangled in the Sea-grass of the Arary River, a Tributary of the Rio Pará belonging to the Island of Marajo.

form entire woods, and similar woods are formed on the banks of the rivers by the *Mauritia flexuosa*. The carnauba or wax-palm (*Copernicia cerifera*) deserves special mention on account of the variety of its products; its timber furnishing both rafters and laths, its fruit serviceable as food for cattle, the stones of the fruit capable of being roasted and ground for use like coffee, the roots affording a valuable medicine, and the shoots and young leaves yielding a kind of wax which forms a considerable export. For tree-ferns the climate of the Amazonian region is too hot and moist, but these graceful plants flourish admirably on the shaded slopes of the southern forests. A peculiar characteristic in Brazilian vegetation is the host of species of myrtle-trees, which, though of not much use economically, perfume the air with their exhalations. Among the more valuable trees of the Brazilian forests are the beautiful and colossal *Bertholletia excelsa* or monkey-pot tree, the kernels of which, growing in hard round nuts six inches in diameter, are exported from Pará under the name of Brazil nuts; the *Siphonia elastica*, from which caoutchouc is obtained; the andaaçu, or Purga da Paulistas (*Anda Gomezii*), the seeds of which yield a tasteless oil, more powerfully cathartic

than castor-oil, and now imported into Europe; the cacao or chocolate-tree; the *Cæsalpinia echinata* or Brazil-wood, which yields a valuable red dye; the rose-wood-tree, the fustic, mahogany, and a variety of others well adapted for the purposes of ship-building. Besides the *Siphonia elastica* of the forests of the Amazon region, other trees supply considerable quantities of caoutchouc in other regions; as the tree locally called *manisoba* in the province of Ceará, and that called *mangabeira* in the provinces still further to the south. From the forests of Brazil there are also obtained many valuable drugs, such as ipecacuanha, sarsaparilla, jalap, &c.

The *catingas* or woods of the Campos or interior table-lands are very different from those of the dense primeval forests. The trees in them are not so closely crowded together nor so lofty as those of the latter, and in the dry season, beginning in March or April, many of them cast their foliage. Here also, however, evergreens are abundant, and there is a great variety of parasites and epiphytes, the former principally Loranthaceæ and the latter Bromeliaceæ and Cactaceæ. The latter family, the cactuses, conspicuous among which are the columnar cereuses and the jointed opuntias, are hardly to be seen anywhere in greater variety than here, whether as epiphytes or independent plants. But the chief vegetation of the Campos consists of grasses, which are mostly only 2 feet high and not very rich. Amidst them grow a multitude of herbaceous flowering plants, displaying a greater variety of splendid colour than the flowering plants of the northern savannahs, as the forests of the same latitudes are more brilliant in their blossoms than those of the Amazon region.

The principal food-plant cultivated in Brazil is the manioc, mandioca, or cassava, a native of the country. It is a shrub about eight feet in height, with broad, shining, hand-shaped leaves, and beautiful white and rose-coloured flowers; and, singular to say, the roots, whence the nutritious substance of the plant is derived, contain along with it a deadly poison. Even before the arrival of the Europeans the natives knew how to separate this poison from the wholesome food, but improved methods have since been introduced. The roots, when dry, have some resemblance to those of the long parsnip, and in their crude state cannot be preserved three days by any possible care. "The process of preparation is first to boil them, then remove the rind, after which the pieces are held by the hand in contact with a circular grater, turned by water-power. The pulverized material is then placed in sacks, several of which, thus filled, are subjected to the action of a screw-press for the expulsion of the poisonous liquid. The masses thus solidified by pressure are beaten fine in mortars. The substance is next transferred to open ovens, or concave plates, heated beneath, where it is constantly and rapidly stirred until quite dry. The appearance of the farina, when well prepared, is very white and beautiful, although its particles are rather coarse. It is found upon every Brazilian table, and forms a great variety of healthy and palatable dishes." (Kidder and Fletcher's *Brazil and the Brazilians.*) The sago-like tapioca of commerce is prepared from the finest farina or manioc-flour by a special process. Even the poisonous juice of the roots is not lost, for by boiling it is converted into a sauce called *cassaripe*,

regarded by epicures as delicious. While manioc affords the staple food of the common people and a food in general use by all classes, maize, which is largely cultivated in the southern provinces, and a kind of kidney-bean (*Phaseolus derasus*) known as black bean, supply the principal other articles of vegetable diet in use in the country; but in addition to these, ground-nuts, sweet-potatoes, yams, tayopa (*Colocasia esculenta*), manzorito (*Caladium sagittifolium*), &c., are all cultivated for food more or less. Besides maize the only cereal grown to a considerable extent is rice, and it is grown (on the low flats along the coast) almost solely for export. The cultivation of some of the European grains has been introduced with success, but is not largely pursued, and the potato, though a native of South America, has been introduced into Brazil as a cultivated plant from Europe.

Among plantation products the most important are coffee, sugar, cotton, and tobacco, and the first two are the staple commercial products of the empire. The chief seat of the coffee culture, which is rapidly extending, is in the province of Rio de Janeiro and the eastern part of Minas Geraes. That of sugar is chiefly carried on in the provinces along the coast from Parahyba to Bahia; cotton is principally cultivated in the northern maritime provinces; and tobacco mainly in districts along the coast, but also in the province of Matto Grosso. Cacao also is an object of cultivation of some importance, and tea has been introduced with success. Yerba maté or Paraguay tea forms a considerable export, but is not largely cultivated, being chiefly obtained from the wild plant (*Ilex paraguayensis*), which is a native of the southern provinces. The total area under cultivation in Brazil, as might be at once concluded from the extreme rarity of the population as shown in the table, is a very small fraction of the whole area, probably no more than a hundred-and-fiftieth part.

ANIMALS.—The woods of Brazil swarm with rapacious animals—tiger-cats, hyenas, saratus (a ferocious creature about the size of a fox), jaguars, sloths, porcupines, &c. Wild hogs are also common, as well as an amphibious animal called the water-hog or capybara, resembling a hog in form but of the size of a heifer. Parrots, both long-tailed and short-tailed, are more abundant in Brazil than anywhere else in the world, so that the more extended knowledge of modern times has justified the Nürnberg map-maker of 1502 in naming the country "Brasilia sive Papagalli terra,"—Brazil, or the land of the parrot. There are likewise numerous other birds of splendid plumage, besides an infinite variety of other natives of tropical countries as indicated in the general recount of South America. Water-fowl, especially geese and ducks, abound in certain seasons on the lakes and lagoons at the southern extremity of Brazil. The reptiles include the boa-constrictor, the coral snake, the sorrocuco, and the jarraraca (*Bothrops Neuwiedii*, Spix), all except the coral snake venomous, and much dreaded by the natives. In the marshy countries of the south the boa attains a length of from thirty to thirty-five feet. The jarraraca, which is about six feet long, is nearly allied to the rattlesnake genus, and inflicts a bite always attended with great suffering and very serious consequences even when death is averted. The coral snake, of a bright, coral-red colour, transversely banded with black,

is small, timid, and harmless, and in some parts, says Wood, is tamed and worn by the native women as a necklace. The insects of Brazil are, many of them, remarkable for the beauty of their colours and their size, especially the butterflies. Other descriptions are so numerous in the woods that their noise is heard in a ship at anchor some distance from the shore; while the termites or white ants, as they are called, are so numerous and destructive that Humboldt says there is not a manuscript in South America 100 years old. The scorpions of Brazil attain a length of 6 inches, but are less venomous and dangerous than those of Europe, Africa, and Asia. Most of the bees of the country are stingless, there being no fewer than thirty species of that description. The shores and rivers abound with fish. Amongst the most valuable of those caught on the former is the garopa, which attains a length of from 12 to 20 feet and is of good flavour. They are most numerous on the coast of Bahia, where great quantities are annually taken and exported. The fish caught in the Amazon and other rivers constitute a principal part of the subsistence of the inhabitants. The principal domestic animals of Brazil are horned cattle and horses; the numbers of the former are prodigious, covering the boundless plains of the interior. The greatest part of them live in a wild state, and are not milked. Horses are numerous in the southern provinces; they are of a middling size, from 12 to 14½ hands high, but strong, active, and swift. Mules are reared in the same localities. Sheep are in little repute, the meat being ill flavoured and the wool of indifferent quality. Goats and hogs are abundant.

COMMERCE AND SHIPPING, &c.—The principal articles of export of the empire of Brazil in the order of their importance are coffee, sugar, india-rubber, raw cotton, hides, tobacco, Paraguay tea, gold, diamonds. The imports are mainly composed of manufactured articles, almost all the wants of this kind being supplied from abroad (chiefly from Great Britain), since the manufacturing industries of Brazil itself are mostly subsidiary to their agricultural and mineral productions. Next after Great Britain the country which has the principal share in supplying the imports of Brazil is France. The exports go chiefly to Great Britain and the United States, those destined for the former country being chiefly raw cotton and sugar. About half of the exports proceed from the port of Rio de Janeiro, and the ports of next consequence in this respect are São Paulo, Bahia, Pará, and Pernambuco. Rather more than a half of the carrying trade between Brazil and foreign countries is under the British flag, and only a very trifling portion of it under the native Brazilian flag. The coasting-trade from the mouths of the Amazon to Lake Merim is tolerably active, several companies, all subsidized by government and for the most part created by British capital, being engaged in it. The internal navigation has been thrown open to the flags of all nations since 1867. Steamers navigated the Amazon for the first time in 1853, and till that year the shipping on that river was often greatly hindered by the irregularity of the winds at certain seasons, though in the early months of the year a strong wind could always be depended on to carry the vessels up stream. Railways and telegraphs are still in their infancy. The number of letters annually delivered is equal to about 1·6 per

head of the settled population. Since 1874 Brazil has been connected with Europe by a transatlantic cable.

MONEY, WEIGHTS, AND MEASURES.—The ordinary unit of account for all except very small transactions is the milreis, of 1000 reis, the standard value of which is equal to about 2*s.* 3*d.*, an English sovereign being legal tender for 8·890 reis. At present, however, the average rate of exchange of the milreis is only about 2*s.* Gold and silver coins are now scarcely to be seen in Brazil, and the circulating medium in ordinary use consists of inconvertible treasury notes called *sedulas*, of a milreis and upwards, depreciated in value (to such an extent that specie bears a premium of from 60 to 75 per cent), together with copper and

The Market, Pará.

bronze coins. The French metric system of weights and measures was adopted in 1862, and made nominally compulsory in 1872, since which date it has been uniformly used in official departments, but the old weights and measures are still largely used. They are—the *libra* = 1·012 lb. avoirdupois; the *arroba* = 32·38 lbs.; the *quintal* = 129·54 lbs.; the *alquiere* = 1 imperial bushel; the *oitava* = 55·34 grains; the *vara* = 1·215 yard.

PEOPLE, LANGUAGE, RELIGION, EDUCATION, &c.—The free population of Brazil consists of Europeans and people of European, principally Portuguese, origin; mulattoes; Mamalucos, a mixed race between whites and Indians; Indians in a domesticated state, called Caboclos; Indians in a savage state called Tapuyas or Gentios (the latter term equivalent to heathens); free Negroes, born in Brazil; manumitted Africans; mestizoes, a mixed race, between Indians and Negroes. The slave population consists of Africans, Creole Negroes (that is, Negroes born in the land), mulattoes, and mestizoes. At the census of 1872

about 38 per cent of the settled population were stated to be of European origin, but this proportion undoubtedly includes considerably more than those of pure blood. All those pass for pure in Brazil in whom the traces of Indian admixture are not very clear; but as few women emigrated from Portugal to Brazil while the country remained a colony of the former kingdom, the probability is that the Brazilians of unmixed Portuguese origin are not numerous. The Portuguese language, however, has become that of the whole settled population. The mulattoes and other inhabitants of mixed race formed at the same date rather more than 38 per cent of the whole population; the Negroes rather less than 20 per cent, and the settled Indians a little less than 4 per cent. The African section of the population was introduced into Brazil in the same manner as into the rest of America, through the slave-trade, and is still for the most part in a state of slavery. The number of the slaves is now, however, steadily diminishing under a law providing for the gradual abolition of the practice of slave-holding. This law, which came into operation on the 28th of September, 1871, enacts that all children born after that date shall be "considered as of free condition," although, when the parents are slaves, such children are to be bound to serve the owners of their mothers under the name of apprentices until they attain the age of twenty-one. The settled Indians formerly belonged for the most part to mission-stations, but are now directly under the control of the government, which appoints the administrators of the native villages, but at the same time recognizes (as the Dutch government does in the Eastern Archipelago) the authority of the native chieftains (*caciques*). But the majority of the pure Indians still roam wild in small bands through the Selvas of the Amazon or over the grassy plains of the western Campos, in a state of complete independence, though generally maintaining some kind of intercourse with the settled population. They seem mostly to belong to one stem speaking kindred dialects, which enabled the early Jesuit missionaries to develop the dialect of the principal tribe on the east coast, the Tupinambaras, into a general language (*lingoa geral*), which is still the principal medium of communication between the settled Indians and Indians of mixed race and the wandering tribes. The wandering Indians are for the most part in a very low stage of civilization, going almost or quite naked, armed only with bows and arrows (in using which they show extraordinary skill), or sometimes also with lances and clubs, and living by hunting and fishing. The northern tribes poison their arrows with the celebrated curara or woorali poison. The most barbarous of all the tribes is that formerly known as the Aymores, but now generally called the Botocudos, the only tribe in the east which has not been brought under the sway of civilization. They are mainly to be found in the forests between the Rio Pardo and the Rio Doce, but wander far and wide from that centre, and have been seen as far south as the province of Rio Grande do Sul. Wherever they are found they are instantly recognizable by their hideous practice of wearing large wooden disks or cylindrical pieces in the lobes of the ears and in the lower lip, and by their no less hideous fashion of colouring their faces. They are (with good reason) extremely shy of coming in contact with the settled inhabitants of the land, who

regard them as outlaws, and they are rapidly dying out. As the Botocudos are the most repulsive, the Guatos, in the south-west, are said to be the handsomest and mildest-mannered of all the wild tribes. They are extremely fond of the water, passing most of their time in boats, which during the rainy season they do not quit for weeks together. They are very willing to engage in trade with the Brazilians, and, whether in consequence of this intercourse or from superior native capacity, they are reported to be the only wild tribe having a numeral system extending beyond the number 5.

Besides native Brazilians there were among the settled population of Brazil at the last census about 200,000 foreigners, not counting the natives of Africa who had been forcibly introduced as slaves. Of these the majority were Portuguese, who are regarded by the native Brazilians with cordial dislike, partly on account of the old jealousy which arose when Brazil was still a Portuguese colony and Portuguese were generally advanced to posts of honour and emolument in preference to those born in Brazil, and partly in consequence of their superior energy and activity, which enables them to take the trade out of the hands of the easy-going Brazilians. Next in number to the Portuguese are the Germans, who numbered 44,600 at the census of 1872, and are estimated to have increased since that date to upwards of 100,000. They form the great bulk of the colonists who have come to settle in the agricultural colonies founded by the general government, the provincial governments, and private speculators in the southern provinces of the empire, where the climate is best suited for European constitutions. Some of the colonies are said to be highly prosperous and very healthy. Others again have proved disastrous undertakings, chiefly because the climate of the locality selected for them turned out to be unsuitable for the class of immigrants settled there. On the whole no part of Brazil appears to be well suited for persons of Anglo-Saxon race. The British residents in Brazil are few in number, but in their hands a great part of the foreign commerce is concentrated.

As regards occupations it is calculated that about 40 per cent of the settled population are agriculturists, 1 per cent merchants, 7·7 per cent mechanics and artisans, and 42 per cent without any definite employment. Notwithstanding the immense extent of coast-line few persons gain their living by fishing, a fact attributed partly to the unhealthiness of the sea-coast tracts, partly to the sparseness of the population, and partly to the high rate of wages obtainable in other occupations.

The established religion of Brazil is Roman Catholicism, to which all but a very small minority of the population nominally adhere, and the services of which are performed here with a pomp unsurpassed even in Italy. In fact, however, the great body of the people are far from being religiously inclined, and nothing else could be expected when, as we are informed by travellers, it is notorious "that there is no class of men in the whole empire whose lives and practices are so corrupt as those of the priesthood." The clergy are all paid directly out of the imperial treasury, and the emperor has the appointment to all the more important benefices. In general they are very poorly paid, and

difficulty is found in obtaining a sufficient number of candidates for the office. Men of all shades of colour, and even Negroes, are to be found in the body. The Jesuits formerly exercised great influence in the country and contrasted favourably with the native priesthood by their diligence and the irreproachable character of their lives, and though they were afterwards banished, their return is now silently permitted by the government, and they are rapidly increasing in number. Though Roman Catholicism is the dominant religion every other creed receives perfect toleration, and, so far as the people generally are concerned, this toleration is not only secured by law, but exhibited also in their general behaviour towards adherents of other forms of religion. Dissenters are no longer even deprived of any of the political rights belonging to Roman Catholics.

In 1875 it was ascertained that only about a fourth of the free population was able to read, but efforts are now being made by the government to put an end to this state of ignorance. Primary schools supported by the state through the provincial and municipal legislatures have been established throughout the empire, and in these gratuitous instruction is given, while in some of the provinces school attendance has been made obligatory. There are also schools, both public and private, of a higher grade, and at Rio de Janeiro there is an imperial college or university granting degrees.

GOVERNMENT, REVENUE, DEFENCE, &c.—The government of the empire is monarchical, hereditary, constitutional, and representative. The legislative power is in the General Assembly, which consists of two chambers—the senate and chamber of deputies. Members of both houses are paid. Formerly none but adherents of the Roman Catholic religion could be elected to the chamber, but an electoral law passed by the Assembly in the session of 1880–81, besides making other alterations in the electoral system, conferred the right of being eligible for the chamber not only on non-Catholics but also on freedmen and naturalized foreigners who had been resident in the country for six years. The executive power is vested in the emperor, who is assisted by responsible ministers and a council of state. The latter is composed of twelve ordinary and twelve extraordinary members, all nominated by the emperor for life. The twelve ordinary members are constantly consulted both on matters of internal and external policy, but the whole council is convened only on special occasions. The heir to the throne is by right a member of the council. Each province has a legislative assembly of its own, consisting of a general council and a provincial chamber, and the head of the administration in each province is a president appointed by the central government. The judges in Brazil hold office for life. Three-fourths of the revenue of the empire is derived from duties on imports and exports, and the remainder from railways, licenses, stamps, &c. Nearly two-fifths of the revenue is required to meet debt charges, and since 1873 the debt has been going on increasing in consequence of regular deficits of considerable amount in the revenue, deficits partly due to war and partly to famine expenditure. In order to help to reduce the financial distress the emperor and empress give up one-tenth of their private revenue.

The nominal force of the standing army is fixed at 20,000 men on the peace

footing, and 32,000 on the war footing. It is recruited partly by enlistment (liberal bounties and grants of land at the end of fourteen years' service being held out as inducements to enlist), and partly by conscription, in cases of emergency even by impressment. The navy is not powerful, and is composed chiefly of small iron-clads and gunboats.

CHIEF TOWNS.—There are three towns in Brazil with a population exceeding 100,000, Rio de Janeiro, the capital, Bahia, and Recife. Rio de Janeiro, or Rio,

Rio de Janeiro.

as it is often called, had in 1872 a population of 229,000, or including the eight suburban towns making up the rest of the *municipio neutro* 275,000. It is situated in the middle of the eastern coast-line of South America (about lat. 23° S.) and stands on a fine bay fifteen miles long by eight wide, in which vessels of the largest tonnage can anchor in safety. The bay is inclosed by hills, some of them about 2300 feet high, and the approach to the port from the sea, among a number of beautiful little islands, is remarkably fine. The town itself is situated partly on flat ground along the shore, partly on a number of hills and the intervening valleys. The most striking of all its architectural structures is the aqueduct, consisting of a double line of lofty and beautiful arches, by which the water from the springs of Mount Corcovado is conveyed into the heart of the

town. Other two aqueducts supply the town with water from other sources. Bahia or São Salvador (129,000), on the coast about 13° S., occupies an elevated position on the strip of land forming the east side of the entrance to All Saints Bay, which forms as fine a harbour as that of Rio. The town consists of an upper and lower portion, which are connected by a hydraulic elevator for foot passengers. The appearance of the former portion, which is the larger, finer, and more populous, is antique. The city is the seat of the only archbishop in the empire and possesses a greater number of churches, monasteries, and convents than are to be seen anywhere else in Brazil. The bay from which the town takes its name was discovered by Amerigo Vespucci in 1503, and the town was the capital of the colony of Brazil till 1763, when the seat of government was transferred to Rio, the present capital. Recife or Pernambuco (117,000), on the coast about lat. 8° S., is the landing-place of the telegraph cable connecting Brazil with Lisbon. The harbour is protected by a reef (Portuguese, *recife*) of rocks, but is only fit for vessels drawing less than 12 feet of water. The towns next in importance to these three are Pará or Belem (35,000), on the Rio Pará, the outlet for the commerce of the Amazon river; Maranhão, or São Luiz do Maranhão (32,000), on an island of the same name in a bay on the north-east coast about lat. 2° 30′ S., the centre of commerce for the provinces of Piauhy, Ceará, Rio Grande do Norte, and Goyaz; São Paulo (25,000), the largest of the inland towns of Brazil, and one of the oldest towns in the empire, having been founded in 1554, situated amidst picturesque environs, 220 miles west-south-west of Rio, and 40 miles by rail north-west of the bay of Santos; Porto Alegre (25,000), the capital of the province of Rio Grande do Sul, at the head of the Lago de los Patos; and Ouro Preto (20,000), the capital of Minas Geraes, founded in 1699, first called Villa Rica (rich town) on account of the gold mines in its vicinity.

HISTORICAL SKETCH AND NAME.—The territory of Brazil was solemnly taken possession of in the name of the King of Portugal in 1500 by Pedro Alvarez de Cabral, who had been accidentally driven on its shores. Pedro, believing it to be an island, named it Ilha da Vera Cruz (Isle of the True Cross), but this name afterwards gave place to that of Brazil, from the Portuguese *braza*, a glowing coal, a name given to it on account of the fire-red dye-wood (*Cæsalpinia echinata*) obtained here in such abundance. At first it was used only as a place of deportation for criminals. With Portugal itself Brazil passed to the Spanish crown in 1580, and in 1624, while Portugal still remained attached to Spain, Bahia, then the capital of Brazil, was attacked and taken by the Dutch, who remained masters of Brazil for thirty years. In 1654 Bahia was retaken by the Portuguese, and in 1661 the Dutch formally retroceded Brazil to Portugal (once more independent) for the sum of £350,000. The government of the Portuguese in Brazil was similar to that of the Spanish in Mexico, and the colony did not flourish. A more brilliant epoch began in 1808, when the Portuguese court took refuge here during the Napoleonic era, and in 1821 the Portuguese king, who still remained in Brazil, was compelled to grant a constitution to the Brazilians, and when he returned to Portugal, which he did in the same year, was obliged to leave behind a Portuguese prince as regent. When

the court had got back to Portugal it showed a disposition to ignore the newly granted rights of the Brazilians, who thereupon (Aug. 1, 1822) formally declared the separation of the colony from the mother country, and on the 18th of December of the same year proclaimed the regent emperor under the title of Pedro I.

GUIANA.

The name Guiana is applied in the widest sense to the whole tract of country in the north-east of South America lying between the Atlantic and the continuous line of rivers formed by the Lower Amazon, the Rio Negro, the Cassiquiare, and the Orinoco. It thus includes, besides the colonies belonging to Great Britain, the Netherlands, and France, large areas embraced by Brazil and Venezuela; but this notice will be confined to the colonial section of this region. The area of this section, owing to the want of definiteness in the boundaries of the different colonies, is variously estimated. The area already given in the table of the area and population of the countries of South America is the result of a planimetrical calculation based on a map by H. Kiepert, and is made up as follows:—British Guiana, 85,424 square miles; Dutch Guiana, 46,072 square miles; French Guiana, 46,880 square miles. But the areas more commonly given, namely, for British Guiana about 76,000 square miles (the official estimate); for Dutch Guiana about 58,500 square miles; and for French Guiana about 53,000 square miles; in all 187,500 square miles, agree better with the boundaries usually assigned to the three colonies on maps. The portions of territory disputed between Great Britain and Venezuela (an indefinite area west of the Essequibo) and between Great Britain and Brazil (certain tracts in the south) are usually represented as British, and if both tracts were surrendered the area of the British colony would be reduced to about 14,000 square miles. In the case of French Guiana the territory which that colony claims from Brazil is usually represented as belonging to the latter country, and if added to French Guiana would about double its area.

The territory embraced by colonial Guiana is in many parts very little known, but all the three sections of the territory agree in having low flat coasts, followed by densely wooded hilly and even mountainous tracts. The highest mountains appear to be in British Guiana, where the Pacaraima Mountains near the centre of the country form the most remarkable range, a range distinguished by scenery of extraordinary grandeur, and culminating in the peak of Roraima, which rises on the western frontier of the colony in the form of a perpendicular wall of sandstone to the height of about 7500 feet. On the south, colonial Guiana is separated from Brazil by a series of hills or mountains forming the watershed between the basin of the Amazon and the rivers which flow into the Atlantic on the north-east coast. In the west this watershed has the name of the Sierra

Acarai and in the east that of the Tumac-humac range. No part of it seems to attain a great elevation. The Sierra Acarai does not exceed 4000 feet in height, and in the south of French Guiana the Tumac-humac range was estimated by Dr. J. Crevaux, who crossed it in 1877 after ascending the Maroni, at not much more than 1300 feet.

The forests of Guiana are so dense that very little light can penetrate their foliage, so that the vegetation of lower growth is almost entirely destitute of those brilliant flowers which generally characterize tropical climates, and consists largely of mushrooms and similar plants. In their general appearance they resemble those of the Amazon region. Very few of the trees shed their leaves. Many of them grow to a magnificent size, and among these the most conspicuous is the valuable timber-tree known as the mora (*Dimorphandra excelsa*), which sometimes attains the height of 150 feet, and is described as appearing from a distance like a hillock clothed with vegetation. Of the other valuable timber-trees of the region we may mention the lofty ayucari (*Icica altissima*), often called "red cedar," the *Carapa guianensis*, and the cuamara (*Dipteryx odorata*), the last of which furnishes besides timber the fragrant tonka beans. Among the aquatic plants of the region is included the beautiful *Victoria regia*, the largest of the water-lilies, whose immense bright green leaves, and correspondingly large white and pink flowers attain their greatest perfection in some of the rivers of British Guiana.

All the three colonies have long had the reputation of unhealthiness, but it is now asserted of every one of them that this reputation is undeserved, and that, on the contrary, the climate is healthy even for Europeans, when due precautions are taken. An excess of births over deaths in a particular year (1879) is nevertheless noticed in a recent blue-book relating to Dutch Guiana as "a circumstance which the oldest colonist cannot remember." In British Guiana the ratio between births and deaths shows on an average of years a considerable natural increase of the population. The range of temperature, as in all tropical countries, is small, the thermometer seldom rising above 90° or falling below 75° Fahr. The year is not so regularly divided between a dry and a rainy season as it is both in the region to the west (Venezuela) or that to the south-east (the Lower Amazon); and the total amount of annual rainfall, as mentioned in the general account of South America, is greater than in both of these regions. The period from July or August to November is that in which least rain falls, but the distribution of the rainfall as to seasons varies considerably in different years. All the observations, it should be stated, belong to places on or near the coast. Thunderstorms are frequent at certain seasons, but hurricanes are unknown.

BRITISH GUIANA has a coast-line including indentations of nearly 500 miles, and the level country bordering on the coast extends from ten to forty miles inland, till it is arrested by a range of low sand-hills, a former sea-beach. The whole surface of the coast lands is on a level with the high-water of the sea. To be made fit for cultivation these lands have accordingly to be converted as in Holland into polders, by draining and embankment; and as the surface then sinks fully a foot below the level of high water it becomes necessary to pay

unremitting attention to the dams and sluices to keep out the sea. The same precaution is necessary even on the land side to protect the polders against inundation from the waters that collect on the savannahs of the interior during the rains. The total area of empoldered land is only about 200,000 acres, or less than $\frac{1}{240}$th of the estimated area of the colony, and the area under cultivation in 1879 was scarcely two-thirds of that amount. The chief object of cultivation is the sugar-cane, and the next in importance are cacao, coffee, and cocoanuts for export, and plantains for home consumption. Cattle farms also are numerous, and besides agricultural produce a considerable quantity of timber is annually exported. After the abolition of slavery, or rather of compulsory apprenticeship in Guiana (in 1839) cultivation greatly declined, but it is now extending, chiefly through the employment of coolie labourers from India and China, partly also of other immigrants from the West Indies, Madeira, &c. Between the census of April 1871 and the end of 1879 the population of the colony was estimated to have increased, chiefly by immigration, from 193,491 to 248,110, an increase of 28 per cent. At the census about three-fifths of the population consisted of Negroes and mulattoes, and more than one-fifth of immigrants from India. The whites were under 10,000. The aborigines, estimated to number about 7000, are not included in the census.

The administration of this colony is in the hands of a court of policy, consisting of five official and five non-official members. The official members are the governor, the attorney-general, government secretary, auditor-general, and immigration agent general. The non-official members are selected as vacancies occur by the remaining members of the court from persons nominated by a body called the college of electors. Two persons are nominated for each vacancy. The persons chosen members of the court hold office for life, or until they quit the colony. The college of electors consists of seven members, who are elected by the inhabitants of the electoral districts who possess a certain qualification. Another body of six members, called the college of financial representatives, is elected by the same electors, and meets once a year in combination with the court of policy to fix the taxation for the year. The colony is divided into the three counties of Berbice, Demerara, and Essequibo. Education is nominally compulsory, and under the operation of the law making it so the school attendance

Aborigines of Guiana.

is increasing; yet in 1879 the average number of children attending school was probably under a fourth of those of school age. The capital of the colony is Georgetown, Demerara, which has a population of about 40,000.

The first settlement, to which the name of New Zealand was given, was formed by the Dutch, about 1580, on the river Pomeroon, about thirty miles west of the estuary of the Essequibo, whence they spread east to the Essequibo and Demerara. In 1781 the colony was taken by Sir George Rodney; and after repassing more than once into the hands of the Dutch it has remained with the British since 1803.

DUTCH GUIANA lies to the east of British Guiana, from which it is separated by the river Corantyn. In this colony the proportion of land under cultivation is even smaller than it is in British Guiana, a consequence chiefly of the fact that the blow given to agricultural production by the abolition of slavery is here of more recent date (1863). Coolie labourers are now being imported, but another check has been given to the revival of agriculture by the discovery in 1874 of rich deposits of gold on the banks of the Marowyn or Maroni, these deposits now attracting a considerable number of labourers. As in British Guiana the principal object of cultivation is sugar, but cacao is relatively of much greater consequence as a plantation product here than in the former colony. In spite of the wealth of the colony in timber, so great is the deficiency of labour that the import of that commodity sometimes exceeds the export. The government of the colony is vested in a governor and house of assembly. The latter is composed in part of elected members, but its decisions are liable to be overruled by royal decree. The colony is not self-supporting, the mother-country being obliged to contribute an annual subsidy to defray part of the expenses of government. The first settlement was formed at Surinam by the English, but was captured by the Dutch in 1666. Since then it has been mostly in Dutch hands, though the whole of Dutch Guiana was occupied by the English from 1804 to 1815. The capital of the colony is Paramaribo at the mouth of the Surinam, in the lower part of which most of the settlements are situated. The population of the whole colony in December 1875 was 51,000, exclusive of about 17,000 aborigines and maroons or bush-negroes, the latter consisting of fugitive slaves and their descendants. Negroes and mulattoes form the great majority of the population, and the Europeans, exclusive of soldiers in garrison and seamen in harbour, numbered in 1875 only about 700.

FRENCH GUIANA is the easternmost of the three European colonies in the north of South America. In this colony the discovery of gold deposits has been even more hurtful to agricultural industry than in Dutch Guiana. This metal has been obtained on the Aprouague since 1862, and more recently it has been discovered also on the Sinnamari and the Mana; and in 1878 gold furnished about $\frac{17}{18}$ths of the total value of the exports. The chief objects of cultivation for export are arnotto and cacao, but the amount of these commodities now exported is very trifling. Since 1851 the colony has been used by the French government as a place of deportation for convicts, but those sent here are chiefly Arabs (from Algeria), Anamites (from French Cochin-China), and Negroes.

The administration is vested in a governor and military commandant and a privy-council. The first settlements by the French in Guiana were attempted early in the seventeenth century, but it is only since 1674 that this territory has been a colony under the direct control of the French government. The capital is Cayenne, which has a population of about 10,000. The total population of the colony in 1877 was about 27,000, which was made up of much the same elements as that of Dutch Guiana.

VENEZUELA.

Venezuela lies on the north coast of South America, between British Guiana, Brazil, and Colombia, and is at present a federal republic composed of 20 states, 3 territories, and the federal district of Caracas. The total area is equal to nearly five times that of Great Britain. The details are shown in the following table:—

	Area in square miles.	Population, 1873.[1]	Pop. per sq. mile.
STATES.			
Bolivar, ...	5,540	129,143	23
Guzman Blanco, ...	2,583	94,151	36
Guarico, ...	25,580	191,000	7
Carabobo, ...	2,117	117,605	55
Barquisimeto, ...	7,378	143,818	20
Falcon, ...	11,252	99,920	9
Portuguesa, ...	6,840	79,934	12
Yaracui, ...	2,870	71,689	25
Cojedes, ...	5,104	85,678	16
Zamora, ...	17,005	59,449	3½
Apure, ...	18,898	18,635	1
Guzman, ...	6,014	67,849	11
Tachira, ...	4,843	68,619	14
Trujillo, ...	5,231	108,672	21
Barcelona, ...	15,247	101,396	6½
Maturin, ...	13,107	47,863	3½
Cumaná, ...	3,915	55,479	14
Zulia, ...	29,738	59,235	2
Nueva Esparta, ...	1,600	30,983	19
Guayana, ...	148,850	34,053	
TERRITORIES.			
Amazonas, ...	102,560	23,048	
Marino, ...	476	6,705	14
Guajiro, ...	2,508	29,263	11½
Federal District, ...	6½	60,010	
Total (in round numbers),...	439,250	1,784,000	4

[1] The first census of Venezuela.

PHYSICAL FEATURES.—A little beyond the south-west frontier of Venezuela the eastern chain of the Andes of Colombia divides into two branches, of which the western strikes northwards, and from about 8° 30′ N., under the name of

Sierra de Perija, a range of moderate elevation rarely exceeding 4000 feet in height, forms the boundary between Venezuela and Colombia, while the eastern and more important branch, called the Sierra Nevada de Merida (Snowy Range of Merida), stretches north-east for about 300 miles, with a breadth at some parts of about 60 miles. The latter is an immense pile of rocks rising to the limits of alpine vegetation, and, as its name indicates, above the limit of perpetual snow. The Paramos or summit plains have generally an elevation of 12,000 feet, and the loftiest summit, the Picacho de la Sierra, attains the height of 15,022 feet. Breaking off from the Snowy Range near Trujillo a branch runs north-east, and then parallel with the north coast, and at no great distance from it. The Silla de Caracas here rises to more than 8000 feet in height. In the south-east of Venezuela, between the Orinoco and the Amazon, lie the mountains of Parime or Parima, an unexplored region overgrown with superb forests. From these mountains to the coast chain at Caracas, and from the foot of the Andes to the mouths of the Orinoco, extend the vast plains or Llanos already described in the general account of South America. As there mentioned these plains are no longer the treeless expanses, the "sea of grass," that they were in the time of Humboldt. Treeless tracts are not indeed entirely wanting, and the further one advances to the south the more numerous and more extensive do they become, but nowhere are they sufficiently large to reach to the horizon, nowhere does one come in sight of anything answering to the conception which Humboldt's descriptions call up. The trees that give the prevailing aspect to the Llanos, as they now are, are sometimes evergreen oaks, sometimes mimosas. South of Calabozo a small kind of palm, known as the uanera palm, which furnishes a building material for the huts of the natives, and also, in its leaves, when dried, a covering for their roofs, becomes common enough to form what might almost be called woods. The whole of Venezuela, except the alluvial tracts about the Orinoco, is subject to earthquakes.

RIVERS AND LAKES.—The principal rivers are the Orinoco and its affluents. The Orinoco, though about 1500 miles in length, has a course so circuitous that the direct distance from the sources to the mouth is only about 900 miles. Its delta has an area of about 8500 square miles, and is intersected by about fifty mouths, only seven of which are navigable, and only one, hence called the Boca de Navios (Ship Mouth), navigable for large vessels. The distance to which the river is navigable is upwards of 900 miles, the navigation being first interrupted by the cataracts of Atures. Above Atures a whole series of cataracts (*raudales*) occur at intervals along the greater part of the northerly course of the river. The rivers flowing into the Caribbean Sea are much inferior in magnitude. The chief lakes are those of Maracaybo and Tacarigua or Valencia, but the former is rather a gulf of the sea than a lake.

CLIMATE AND PRODUCTIONS.—Regarding the climate it is not necessary to add anything to what has been said in the general account of South America, except that the change that has taken place since Humboldt's time in the vegetation of the Llanos seems also to have modified to some little extent the climate of that region. Formerly during the dry season the sky there was absolutely

cloudless and there was scarcely a trace of moisture, but now heavy dews fall and even on occasion light rains, and a recent traveller, who visited the Llanos during the dry season, states that he never once saw the sky quite free from clouds for twenty-four hours together all the time he was there (from the 11th to the 24th of January). At the foot of the Andes, rains fall heavily with little intermission for ten or eleven months in the year. From the level of the sea to the height of 3300 feet extends the region of palms, among which may be singled out for particular mention the *Attalœa funifera*, which grows on the river banks in the upper basin of the Orinoco, and is valuable from yielding the fibre called *piassaba*, out of which are made cables not liable to injury by water. Mingled with the palms are cactuses of candelabra forms, sensitive mimosæ, the pine-apple, the cow-tree (*Brosimum Galactodendron*), a lofty tree belonging to the bread-fruit family which yields a juice closely resembling in its appearance and qualities the milk of the cow, and hence very generally used where the tree grows as an article of food; the mahogany, and the trees and other plants yielding sarsaparilla, copaiba, dragon's blood, tolu balsam (a drug allied to the balsam of Peru), sassafras, and other drugs, besides caoutchouc, which is obtained from several trees, various resins and dyes, tonka beans, &c. Sarsaparilla grows in remarkable abundance in the south-west of the country on the banks of the Inirida. Starting from an elevation of generally 2000 feet are the forests of the cinchona or Peruvian bark tree, the aromatic vanilla, the plantain, &c. Trees grow stunted at an elevation of 8000 feet, where all the grains of temperate regions attain perfection. At the height of 13,700 feet only lichens and hepaticas cover the rocks.

Among the cultivated plants subservient to the wants of the inhabitants or to the demands of commerce are the coffee-plant, the cacao-tree, the coco-nut, tobacco, maize, of which two crops are gathered in the year, cotton, sugar, and indigo. For commercial purposes the staple agricultural product is coffee, the export of which has been steadily and rapidly increasing of late years. It is grown both in the valleys and on the hills, but that grown on the hills is both heavier and of finer flavour than that grown in the valleys. Next after coffee, cacao, cotton, and tobacco are the chief agricultural products exported. Sugar is now hardly exported at all, but it is still largely grown for home consumption, a coarse brown kind (little purified), called *papelon*, forming one of the chief means of subsistence for the poorer classes. The production of indigo has greatly declined. The Llanos are devoted to the rearing of cattle and other animals, and except in favoured spots here and there, on which bananas and plantains are grown, are unfit for cultivation. The number of cattle reared has greatly declined from what it once was in consequence of the political disturbances that have agitated the land. The number of horses has been tremendously reduced from another cause. In 1843 a pestilence, which lasted for many years, broke out among them, and diminished their numbers, it was estimated, by six or seven millions. It attacked not only horses, but also mules, asses, and other quite different mammals, such as monkeys and rodents, especially the capybara. The chief feature of the pestilence was the laming of the hind-legs or lower

extremities of the animals attacked. In general the wild animals are the same as in the adjoining parts of South America. The mosquito is here a fearful pest, and it is even asserted that this insect does more to prevent the increase of the population than even the heat and the malaria. The fauna of the Llanos is very scanty.

Among the **minerals** are gold, silver, tin, and copper, but the first and the last are the only metals now produced to any extent, an English company working copper-mines at Aroa about 30 miles inland from the Gulf of Triste. Coal is said to be excellent and abundant in many of the coast districts; salt mines are found in the same districts; asphalt and petroleum abound round Lake Maracaybo, phosphate of guano is obtained on the island of Orchilla, and soda from a lagoon near Lagunilla in the province of Merida.

COMMERCE, &c.—The foreign trade is carried on chiefly with Germany, Britain, France, and the United States. Germany and the United States receive the bulk of the exports, but Great Britain sends a greater proportion of the imports (chiefly manufactured articles) than any other country. Besides the agricultural products already mentioned the principal articles of export are hides, dye-woods, and gold and specie. The chief ports are La Guayra (the port of Caracas) and Puerto Cabello. The only railway yet opened is one of 70 miles in length, from Tucacas to the copper-mines of Aroa. The monetary unit of Venezuela is the *venezolano* of the approximate value of 4*s.*, and divided into 100 *centavas*. The French metric system is the legal system of weights and measures, but the old Spanish weights and measures are in general use.

PEOPLE, &c.—The population is of Spanish, Indian, and Negro origin, either of pure or mixed blood. The white inhabitants of pure blood do not amount to more than one per cent, while the remainder of the population are mestizoes, mulattoes, and other mixed breeds. A considerable number of the Indians lead an independent life free from all control of the state. The Negroes, as in other parts of America, were originally introduced as slaves, but are now all free. The whites, Negroes, and mulattoes, are mainly confined to the extreme north, and the further south one goes the more frequent and distinct do the traces of Indian blood become. The most populous part of Venezuela is that round Caracas and extending westwards from that town along the coast, the valleys and table-lands of which region are the chief seats of cultivation in the confederacy. The states of Carabobo and Guzman Blanco occupying this part of the federal territory contain along with the federal district of Caracas more than 15 per cent of the whole population, although the whole area comprised by them is little more than one per cent of the whole area of Venezuela.

The religion of the state is Roman Catholic. The government has the right of presentation to livings, but subject to the right of confirmation by the pope. Complete religious freedom is allowed. Civil marriages have been obligatory since 1873, and the monasteries have been closed since 1874. Since 1870 increased attention has been paid to education, and the elementary schools have been multiplied and improved. A tolerably well equipped university exists at Caracas.

GOVERNMENT, &c.—The constitution is modelled on that of the United States of America, each state or province having its own legislature and executive, its own budget, &c. The legislature for the whole republic consists in a congress of two houses, a senate and a house of representatives, the former composed of two members for each state, and the latter of one member for every 25,000 inhabitants in each state. At the head of the executive is a president, elected for four years. The territories are directly under the control of the executive. The revenue is mainly derived from customs duties. There is a considerable foreign debt contracted chiefly in Britain, and no interest has been paid on the greater part of it since 1865. The regular army is small, but every citizen from 18 to 45 inclusive must be enrolled in the national militia.

CHIEF TOWNS.—The capital of Venezuela is Caracas (49,000), which stands behind a mountain-chain at the height of 3000 feet above sea-level. It is about 16 miles distant from its port of La Guayra, with which it is connected by a good road. On the 26th of March 1812 the city was in great part destroyed by an earthquake, by which several thousand people perished. The town next in importance is Valencia (29,000), finely situated a little to the west of the lake of the same name. It has a noble old church. Barquisimeto (26,000), about 80 miles to the south-west, is the town next in size, and the only other town with a population above 20,000 is Maracaybo (22,000), on the west side of the lake of the same name.

HISTORICAL SKETCH.—The Republic of Venezuela was formed in 1830 by secession from the other members of the free state founded by Bolivar within the limits of the Spanish colony of New Granada. (See COLOMBIA.) Since 1847 it has suffered greatly from intestine dissensions, leading to an almost continuous civil war, through the struggles of the rival parties of the Unionists and Federalists, the former desiring a strong central government, and the latter the greatest possible independence of the various states.

COLOMBIA.

The United States of Colombia (*Estados Unidos de Colombia*) lie to the west of Venezuela, and form like it a federal republic. The territory embraced by this republic is made up of the north-western part of South America together with the Isthmus of Panama, which belongs geographically to North America. Along the south and east boundaries there is a large extent of disputed territory, so that the official estimate of the area of the republic is nearly two-thirds greater than that of the editors of the *Erdbevölkerung*. This latter estimate assigns to Colombia an area equal to about three and a half times the area of Great Britain. The following table shows the details as given in the sixth number of the publication just mentioned:—

States and Territories.	Area in square miles.	Population, Census of 1870.	Pop. per sq. mile.
Isthmus of Panamá, ...	31,578	221,052	7
Territory S. Andres y Providencia,...	15	3,580	237
Cauca, ...	52,000	435,078	8
Antioquia, ...	22,317	365,974	16
Bolivar, ...	21,000	241,704	12
Territory Bolivar, ...		7,751	
Magdalena, ...	24,440	85,255	4
Territory Goajira, ...		8,390	
Territory Nevada y Motilones,		3,673	
Santander, ...	16,500	425,427	26
Boyacá, ...	17,000	482,874	30
Territory Casanare, ...		26,066	
Cundinamarca, ...	8,500	409,602	
Tolima, ...	18,000	230,891	
Territory S. Martin, ...	109,000	4,056	?
Territory E. of the Cordilleras,		?	
Uncivilized Indians, about		50,000	
Total (in round numbers), ...	320,000	3,000,000	9

PHYSICAL FEATURES.—According to the conformation of its surface the country may be divided into two principal regions, namely, the elevated region of the Cordilleras in the west, and that of the low-lying lands in the east. The former occupies the greater portion of the country, and presents a richly diversified surface. The Andes are here composed of three mountain-chains, which stretch northwards running nearly parallel to one another, and inclosing between them the valleys of the rivers Cauca and Magdalena. The central chain, or Cordillera of Quindiu and Suma Paz, contains the culminating point of the country, namely, the volcano of Tolima, in 4° 46′ N., which rises to the height of 18,270 feet. In the western chain are the volcanoes of Purace and Sotara near Popayan, and Cumbal on the frontier of Ecuador, all rising to nearly 15,000 feet or above it. In addition to these there are several other volcanoes, and earthquakes are not uncommon, though not so destructive as in Central America. All the principal heights are composed of trachytes. In the north the Cordillera of the Isthmus and the Sierra Nevada de Santa Marta form isolated mountain groups of smaller extent. The former range is of very moderate elevation, seldom exceeding 1000 feet until it approaches Costa Rica, in the vicinity of which the volcano of Chiriqui rises to above 10,000 feet. The latter mountain-group, on the other hand, attains an elevation equal to that of the Andes in Colombia. It incloses a valley 16,000 feet in height, and has a pass at the height of 17,000 feet. The greater part of the eastern lowlands belongs to the Llanos of the Orinoco, but the tract in the south-east is part of the Amazon basin.

RIVERS.—The two great rivers of Colombia are the Magdalena and the Cauca, both of which flow northwards, and entirely within the country. The former receives the waters of the latter about 120 miles from its mouth in the Caribbean Sea. The Magdalena is navigable from Honda, 540 miles above its mouth, but the

navigation is difficult on account of the impetuosity of its course, the number of its shallows and sandbanks, and the great and sudden variations in its depth and the situation of its bed. Regular navigation cannot be maintained for even half the distance to Honda, and in the middle course of the river navigation is almost entirely stopt for several months in the year. At and above Honda the navigation is frequently interrupted by cataracts and rapids. The navigation of the Cauca is similarly interrupted till it reaches Antioquia. The Atrato, which flows into the Gulf of Darien, is the only other navigable stream of importance in the thickly inhabited part of the country. It is navigable for the largest ships for 96 miles above its mouth, and for river steamers it is said to be navigable 250 miles.

CLIMATE.—The climate is naturally as varied as the surface of the country. At Honda, nearly 1000 feet above sea-level, so intense is the heat that the hand cannot be held on a stone exposed to the sun's rays, and even the waters of the Magdalena are warm. At Mompox, about 180 miles from the mouth of the Magdalena, the sea-breeze ceases, and the remainder of the voyage up to Honda, 350 miles, is made under the most oppressive atmosphere conceivable through myriads of mosquitoes and other stinging insects. The yellow fever is endemic at Cartagena and on the west coast. On the elevated country, as the plain of Bogotá, 8000 feet above the sea, the climate is perfectly salubrious, and the temperature seems that of eternal spring. Only the highest peaks rise above the snow-line, which on Tolima is at the height of about 15,300 feet. The *tierra fria*, as it is called, occupies a large portion of the elevated regions, and the *tierra templada* a still greater extent of country lower down, but by far the greater portion of the surface, including all the coast-lands, the lower valleys of the Cauca and Magdalena, and the eastern plains, belongs to the *tierra caliente*.

PRODUCTIONS.—The flora is rich and luxuriant. Sterile tracts of great extent are altogether wanting. The only barren parts indeed are the Paramos, or cold, dry, and windy, mountain plains. The limit of trees reaches on Tolima to about 10,000 feet; that of barley is about 1000 feet lower. A great part of the country is still covered with virgin forests, which yield excellent building-wood, more especially a kind of cedar admirably adapted for ship-building; Peruvian bark, the best qualities of which are obtained from an elevation of from 2800 to 3200 feet; caoutchouc, obtained from several trees; divi-divi, the pods of a tree (*Cæsalpinia coriaria*) of the same genus as Brazil-wood; vanilla, &c. Palms grow at the height of 8300 feet and even in some cases higher. Among them are at least two characteristic species, the lofty wax-palm (*Ceroxylon andicola*), which ascends nearly to the lower snow-limit, and has its bark covered with a thin coating of a white waxy substance, a valuable article of commerce, and the low-growing *Phytelephas macrocarpa*, which grows abundantly on the mountains separating the basins of the Magdalena and Cauca, and yields another commercial product, known as vegetable ivory, which is the hardened albumen (almost pure cellulose) of the seeds. Maize, bananas, and plantains are the chief articles of food. Rice is little cultivated, and wheat still less, and not enough cacao is produced to supply the home consumption. Tobacco and coffee are the only vege-

table products grown to any great extent for export, the latter thriving admirably in the *tierra fria*. Indigo and cotton also thrive, and sugar is grown in the lower valleys, but not in sufficient quantity even to meet the home demand. *Erythroxylon Coca*, a bush whose leaves are as universally chewed as a stimulant in the north-western parts of South America as the betel-nut is in the Eastern Peninsula, is also largely cultivated.

The **mineral wealth** of the country is various and abundant, though still imperfectly explored. The first place belongs to gold, which is found in extensive beds in almost all the states of the confederacy, but most abundantly in Antioquia. In this state it is diffused everywhere, but the most important mines are in the north and north-east, though nearer the centre stands the town of Santa Rosa de Osos, which is described as "built on gold," and is almost completely undermined. Silver also is abundant in the same state, the annual production of which in precious metals amounts to about £600,000. The silver mine of Zancudo, near Medellin, the state-capital, is the richest of all the mines in Antioquia. Silver is likewise mined at Santa Anna near Mariquita, in Cundinamarca, platinum at Choco in Cauca, copper at Moniquira in the elevated plain of Bogotá. In the same plain there are enormous beds of rock-salt. Coal and iron are pretty widely distributed. A beginning has been made on the Rio Hacha with the mining of the former mineral, and iron-mines have been opened and even smelting furnaces erected at Samacá in the state of Boyacá. Emeralds are found near Muzo, in Boyacá, and fine amber, sometimes in pieces nearly 15 lbs. weight, not far from Honda. Further, pearls, mother-of-pearl, and coral are obtained on the coasts. **Manufactures** can scarcely be said to exist—Panama hats, mats, and coarse cotton cloths being almost the only articles that can be mentioned in this class.

COMMERCE AND COMMUNICATIONS.—The foreign commerce of Colombia is far behind what might be expected from its wealth in vegetable and mineral products. The principal articles of export in the order of their importance are gold, Peruvian bark, coffee, hides, tobacco, straw hats, caoutchouc, and cotton; and the countries to which these products are principally sent are Great Britain, Germany, France, and the United States. The principal obstacle to the development of the foreign commerce is the deficiency of the communications. At present the Magdalena may be said to form the only great highway to the interior. An English company has been formed for the construction of a railway from Bogotá to Paturia on the Magdalena, but at present the only railways in the country are one of about 18 miles in length constructed by a German company to connect the seaport of Sabinalla with the river-port of Barranquilla on the Magdalena, the two places being separated by sandbanks not passable by ships; and one of about 47 miles in length constructed by an American company across the Isthmus of Panama from Aspinwall or Colon to Panama, and designed as a means of international commerce rather than as an outlet for the commerce of Colombia itself. At present there is a project for still further facilitating the commerce of the world by means of a ship canal across the same isthmus. This project has long been debated, and various schemes have been proposed for

bringing the Atlantic and Pacific Oceans into connection by water either across the Isthmus of Panama or across other parts of Central America; and in 1879 a company formed for the purpose of carrying into execution one or other of these schemes decided on adopting that for cutting a canal without locks and without tunnels from Limon or Navy Bay (near Aspinwall) to the roadstead of Panama, the canal thus following a route nearly the same as that of the railway. A beginning has actually been made with the carrying out of this scheme, but various difficulties still stand in the way of its realization. In the United States the scheme is regarded with no favour, the Nicaragua route being the one preferred there for a canal. Meantime a third means of communication between the two oceans has been projected, namely a ship-railway across the isthmus, by which the projector promises to convey the largest ships on carriages from one ocean to the other within twenty-four hours.

The monetary unit of Colombia is the *peso* of the value of about 4*s*. The legal system of weights and measures is the French metric system (introduced in 1857), but the old Spanish weights and measures are those in ordinary use. The number of letters annually delivered in the republic is equal to only about one for every six of the population.

PEOPLE, &c.—About 53 per cent of the population is estimated to consist of whites and mestizos in whom European blood predominates, about 17 per cent of ladinos, or people of mixed European and Indian blood with a predominance of the latter, about 17 per cent of zambos or people of mixed Indian and Negro race, and the remainder of Negroes and uncivilized Indians. The number of the latter is variously estimated; the *Erdbevölkerung* estimate is 50,000. The inhabitants of Colombia are said to be distinguished in general by cleverness, gaiety, and hospitality. The native whites of Antioquia are credited with better business habits and capacities than are usually met with among South Americans. The most thickly populated part of Colombia is the middle portion of the basin of the Magdalena from Bogotá downwards together with the tract on the left of the Meta east of the Eastern Cordillera. The states of Cundinamarca, Santander, and Boyacá with the territory of Casanare occupying this region contain nearly 45 per cent of the whole population of the confederacy, though covering only about 13 per cent of the area. The territory east of the Eastern Cordillera and south of the Meta is very thinly peopled. It is here that the wild Indians are chiefly found. On the Sierra Nevada de Santa Marta there are reserves of the Arhuacos and Motilones Indians under direct Federal control.

As in all the other states of South America the Roman Catholic is the prevailing religion. Perfect toleration is granted, however, to other creeds. Education is in general in a very backward condition.

GOVERNMENT, &c.—The constitution, dated 8th May, 1863, vests the executive authority in a president elected for two years, and the legislative in a congress of two houses, a senate and house of representatives. The senate consists of three representatives of each of the nine states. The vice-president of the republic, who succeeds the president in case of accident, is chairman of the senate. The house of representatives is elected by universal suffrage, each state

being considered as a single constituency and returning one member for 50,000, and an additional one for every complete 20,000 inhabitants. Each state has a separate legislature and executive. The revenue is derived chiefly from customs duties, the salt mines, and subventions paid by the railway companies. Nearly a third of the revenue is required to meet the interest of the debt. The federal army on a peace footing numbers 2000 men, and in case of war each state is bound to furnish a contingent of one per cent of its population.

CHIEF TOWNS.—Bogotá (41,000), formerly called Santa Fé de Bogotá, is the capital of the United States of Colombia. It is situated at the foot of two lofty mountains on the San Francisco river, a tributary of the Magdalena, at the height of 8800 feet above the sea. On account of this elevation it enjoys a delightful climate, the temperature rarely rising higher than 59° Fahr. The houses are strongly built of sun-dried brick, and are all low on account of the liability of the site to earthquakes. The town was founded by Quesada in 1538. Medellin (20,000), the capital of the state of Antioquia, lies between the western and central Cordilleras at the height of 5000 feet. Socorro (16,000) is the capital of the state of Boyacá, and Panama (18,000) of that of the state of the same name. The latter town, though one of the termini of the Panama railway, has greatly declined from the prosperity enjoyed when Spain was at the height of her power, and contains many relics of her former grandeur to which the generally miserable appearance of the modern town presents a very unpleasing contrast. Aspinwall or Colon, the other terminus of the railway, was founded only at the time when the construction of the railway was commenced, and though from its position well known by name consists of only a few wretched huts situated amidst unhealthy marshes.

HISTORICAL SKETCH.—The territory now forming the United States of Colombia was conquered in 1536 by the Spanish under Quesada, who gave it the name of New Grenada, after his native place. As a Spanish colony it was at first a dependency of the viceroyalty of Lima, but early in the eighteenth century it was made a separate viceroyalty, to which Ecuador was attached as the presidency of Quito. In 1811 New Grenada declared its independence of Spain, and being joined by Venezuela (the captain-generalship of Caracas) formed the first republic of New Grenada in 1819. Ecuador, however, was still under Spanish yoke, but in 1822 it also was liberated and joined to the new republic. But the union did not last long. In 1830 the three states finally separated into three republics, and in the following year a constitution was proclaimed for Colombia by which it was made an undivided state. But in 1853 disturbances broke out in consequence of which the single republic became dissolved in 1857 into a confederation of semi-independent states. By the convention subsequently assembled to draw up a new constitution, the present name of the state was adopted in place of that of New Grenada. Ever since the adoption of the present constitution disturbances have been frequent.

ECUADOR.

Ecuador is a republic lying between Colombia on the north and Peru on the south, but having a very indefinite boundary on the east, as well as the north-east and south-east. Brazil claims no territory further west than the meridian of Tabatinga at the confluence of the Marañon and Javari (about 70° w. lon.); but though the government of Ecuador lays claim to the territory stretching eastwards to that line, Colombia is also a claimant for the portion on the north-east, and Peru for that on the south-east; and according to a communication from a correspondent in the *Proceedings of the Royal Geographical Society* for March, 1880, the rivers Coca and Napo mark the boundary of the territory actually occupied by the Republic of Ecuador, the remaining territory on the north-east being left to Colombia. The area assigned to the mainland of Ecuador by the editors of the *Erdbevölkerung*, an area considerably more than two and a half times that of Great Britain, was obtained by planimetrical calculation from a map which carries the eastern boundary of Ecuador to the Brazilian frontier. The details are shown in a table below. Besides the mainland territory the Republic of Ecuador possesses the Galapagos (Turtle) Islands, the total area of which is about 2950 square miles, or nearly ten times that of the island of Anglesey. Formerly these islands were uninhabited, but now they contain a population of 50 or 60, who employ themselves in collecting archil, a lichen used as a dye.

	Area in square miles.	Population, estimated for 1878.	Pop. per sq. mile.
Esmeraldas, ...	7,440	10,000	1½
Manavi, ...	5,760	67,852	12
Guayas, ...	11,505	94,442	8
Imbabura	11,623	93,659	8
Pichincha, with Quito, ...	9,035	120,280	13
Leon, ...	7,379	101,282	14
Chimborazo, ...	5,545	128,310	23
Azuay, with Cuença, ...	11,309	100,000	9
Loja, ...	10,320	100,000	10
Los Rios, Tunguragua, } formerly Oriente, ...	168,470	130,208	
Uncivilized Indians, ...		200,000	
Total (in round numbers), ...	248,000	1,146,000	4½

PHYSICAL FEATURES.—The coast-line of Ecuador is about 415 miles in length, but besides a few tolerable anchorages has only one considerable indentation, namely the Gulf of Guayaquil in the south. The interior falls, as regards the surface, into three sections—the coast plains, the mountain region, and the plains on the east. The elevated region of Ecuador is formed by a double range of snow-clad mountains—several of them active volcanoes—which inclose a longitudinal valley, with a total length of about 270 miles and an average

breadth of 22 miles, and varying in elevation from 8500 to 13,900 feet. It is divided by transverse barriers into the three elevated plains of Quito, Ambato, and Cuença. The most elevated of these mountains are, in the western range, Chimborazo, Iliniza, and Cotacachi, the lowest of which is above 16,000 feet; in the eastern range, Cayambi, Antisana, and Cotopaxi, the lowest of which rises to not less than 19,000 feet. The average height of the mountains in the western range is lower than on the eastern, but the highest mountain of all is Chimborazo, in the western range. Its height, according to the measurement of Humboldt, is 21,424 feet, but according to the more recent trigonometrical observations of government engineers of Ecuador, 21,060 feet. Cotopaxi, though not the highest, is the most conspicuous peak in this most remarkable region of the Andes. It attracts the eye at once, being a perfectly symmetrical truncated cone, presenting a uniform, unfurrowed field of snow of resplendent brightness. It is not to its beauty, however, that it owes its celebrity, but to its terrific eruptions, which, recurring frequently in the course of the last and the beginning of the present century, totally changed the face of the south part of the valley of Ambato, overturning the towns or burying them under scoriæ and ashes. Pichincha, which, previous to the Spanish conquest, was an active volcano, rises immediately above the plain of Quito. Its crater is three miles in circumference, and may be viewed by a spectator from the precipitous rocks which form its brim. Thus seen it is quite black within, while its upper edges are covered with snow. The most active of all the volcanoes in the land is Sangai, which stands by itself to the east of the Eastern Cordillera. Besides being exposed to destructive volcanic eruptions, Ecuador is subject to earthquakes, which are often still more destructive. The most considerable rivers all belong to the basin of the Amazon. Of the coast streams the longest is the Rio Esmeraldas, which rises on the table-land of Quito and breaks through the Western Cordillera.

CLIMATE.—The plains in the east and west are extremely hot, and at the same time moist and unhealthy. Rain falls there more or less all the year round, and clear days are rare. On the plateau, on the other hand, the air is uniformly temperate. Round Quito, about 9540 feet above the sea, the range of the thermometer is from about 41° to 64° Fahr., yet on account of the frequent variations of temperature the climate is by no means so healthy in that locality as might be expected. Rain falls chiefly between December and May, while the months from June to November are for the most part dry, but they are at the same time those in which the most violent winds occur. The amount of the rainfall here is abundant, rain falling generally for a few hours in the afternoon, though it is rarely so long continued or so heavy as to mar seriously the enjoyment derived from the usually bright sky and delicious atmosphere. The country round Guayaquil is inundated to a great extent in the rainy season (July), after which it remains for some months a pestilential marsh, from which issue incredible multitudes of mosquitoes and other noxious insects, as well as reptiles. The height of the snow-line on Chimborazo in 1° 30′ S. is about 15,900 feet.

PRODUCTIONS.—Dense forests, in which palms and Cycadaceæ predominate,

occupy the low-lying plains and ascend the slopes of the mountains to a considerable height. On Chimborazo the cinchona tree reaches as high as 9500 feet, and tree-like Compositæ ascend to about 13,500 feet. The interior plateau, on the other hand, is scantily supplied with wood, and in part quite destitute of trees; but it is here that the cultivated land of Ecuador chiefly lies and the population is most thickly congregated. The chief products cultivated here are potatoes, quinoa (a product grown still more abundantly in Peru and Chile), barley, wheat, and European fruits. Barley is grown on Chimborazo to the height of 11,800 feet. In the lower regions (below 3000 feet) are grown all the food products of tropical climates, and for export cacao and coffee. The sugar-cane has been grown as high as 7500 feet.

The flora of the Galapagos presents some striking peculiarities. Although situated on the equator they have no palms, in which respect they agree with the other two tropical islands of Ascension and St. Helena, and they are likewise destitute of members of the plantain, ginger, and arum families, all of which are abundantly represented on the neighbouring parts of the mainland. Further, there is a very sharp contrast between the higher and lower flora of these islands. Scarcely a dozen species are common to both.

In **minerals** Ecuador is not so rich as the other states of South America. Both gold and silver exist and are produced to some extent, and lead, quicksilver (cinnabar), and sulphur are the most important of the other minerals. **Manufactures** are as insignificant as in Venezuela and Colombia, the most important being here as there the so-called Panama hats and various articles made from palm-straw or the fibre of the agave.

COMMERCE, COMMUNICATIONS, &c.—The foreign commerce of the country is centred in the port of Guayaquil, and is of very inconsiderable amount. The chief articles of export in the order of their importance are cacao (more than three-fourths of the whole value), cascarilla (the bark of *Croton Eleutheria*, which is used as a substitute for Peruvian bark), vegetable ivory, caoutchouc, straw hats, coffee, hides, &c. Of late the bark of the mango-tree has begun to be exported as a material for tanning. Among the imports flour, chiefly from Chile, has a prominent place beside manufactured articles. The foreign trade is chiefly with the United Kingdom, but a large part of the cacao is sent to Spain. A railway has been constructed from Yaguache, 18 miles north-east of Guayaquil, to the river Chimbo. The chief coin is the *peso* or *piastre*, of the value of about 4*s*., but the money in circulation is principally that of France, Great Britain, and the United States. The metric system of weights and measures was introduced in 1856.

PEOPLE, &c.—In this state the Indians are more numerous and people with Negro blood less so than in the South American states hitherto treated of. The total population and the proportion of the different elements of which it is composed cannot indeed be stated with anything like certainty, since there has been no census of Ecuador since 1856; but according to estimate whites of Spanish descent and mestizoes make up about 47 per cent of the population, civilized Indians about 35 per cent, uncivilized Indians about 16 per cent, and Negroes

and persons with Negro blood about 4 per cent. The western section of the state, that is, all except the eastern plains, contains nearly all the settled population, and has 86 per cent of the inhabitants of the whole state on 32 per cent of the surface, according to the estimate given of the area at the beginning of this article. Almost all the whites and mestizoes and civilized Indians are found on the plateau and round Guayaquil. The civilized Indians form the tribe of the Quitu, and still retain for the most part their old language, a dialect of the Quichoa. The uncivilized Indians belong to various tribes. The Negroes are chiefly found on the west coast. Education is quite as far behind as in the neighbouring states, if not further. The Indians grow up entirely without instruction, and have sunk in the scale of civilization since the separation of Ecuador from Spain. There is a university at Quito.

GOVERNMENT, CHIEF TOWNS, &c.—Ecuador has formed an independent republic since 1830. (See COLOMBIA.) By its constitution, dated March 31, 1843, the legislative authority is vested in a congress of two houses, the members of both of which are elected by universal suffrage, and the executive in a president elected for four years by a body of 900 electors returned by the people for the purpose. The congress meets annually at Quito on the 15th of September, and the president has no right to summon or dissolve it, or to shorten or prorogue its sittings, and no right of veto. The revenue is chiefly derived from import duties. The army consists of only a few hundred men, and the navy in 1879 was composed of three small steamers. Quito, the capital, stands in the northern part of the plateau at the height of about 9540 feet, considerably above the general level of the plain which takes its name from it. It was taken by the Spaniards in 1534, when the present city was founded. It has repeatedly suffered from earthquakes. The population is variously estimated at from 50,000 to 80,000. The only other towns of importance are Riobamba (20,000), not far from Chimborazo, at the foot of which stood the old city of Riobamba, destroyed by an earthquake in 1797; and the port of Guayaquil (20,000).

The Cathedral of Guayaquil.

PERU.

Peru is a republic of South America lying to the south of Ecuador and the west of Brazil and Bolivia. The boundary with Brazil was long disputed, but was finally settled early in 1876; but that with Ecuador and that with Bolivia are still uncertain. The area adopted by us from the *Erdbevölkerung*, which makes Peru less than five times the size of Great Britain, is that given in Soldan's *Diccionario geografico estadistico del Peru* (Lima, 1877). The details are shown in the table below. It is probable that in consequence of the war with Chile begun in 1879, a considerable portion of this territory will have to be ceded to that power, which at present (August, 1881) occupies Peru.

	Area in square miles.	Population, census of 1876.			Pop. per sq. mile.
		Males.	Females.	Total.	
DEPARTMENTS.					
Ancachs, ...	19,266	137,130	146,961	284,091	14
Puno, ...	20,194	127,766	128,828	256,594	13
Cuzco, ...	15,805	118,971	119,484	238,455	15
Lima, ... } ...	13,699	125,072	101,920	226,992	19
Callao, maritime province, }		20,218	14,274	34,492	
Cajamarca, ...	11,785	101,030	112,361	213,391	18
Junin, ...	25,105	102,196	107,675	209,871	8
Arequipa, ...	22,787	79,911	80,371	160,282	7
Libertad, ...	10,869	76,095	71,446	147,541	13
Ayacucho, ...	14,939	69,620	72,585	142,205	9½
Piura, ...	15,757	65,822	69,680	135,502	8½
Apurimac, ...	5,871	59,347	59,899	119,246	20
Huancavelica, ...	8,714	52,460	51,695	104,155	12
Lambayeque, ...	5,975	46,595	39,389	85,984	14
Huanuco, ...	13,782	39,322	39,534	78,856	5½
Loreto, ...	173,060	31,595	29,530	61,125	¼
Ica, ...	8,402	35,058	25,053	60,111	7
Tarapacá, ...	15,916	28,014	13,988	42,002	2⅝
Tacna, ...	11,368	18,897	17,122	36,019	3
Amazonas, ...	13,172	16,272	17,973	34,245	2½
Moquegua, ...	5,969	14,504	14,282	28,786	4½
Total, ...		1,365,895	1,334,050	2,699,945	
Uncivilized Indians, ...		—	—	350,000	
Grand Total (in round numbers), ...	432,400	—	—	3,050,000	7

PHYSICAL FEATURES.—The coast-line, including indentations, which are few and unimportant, has an estimated length of 1660 miles. The coast is for the most part high, and the sea has in certain parts a depth of 500 feet at a short distance from the cliffs. As in the adjoining states the surface exhibits great varieties of physical character, and all on a great scale. Seen from the coast, the Cordillera of the Andes has the appearance of a vast wall, apparently impassable. The region between the Andes and the Pacific Ocean has a width of under 100 miles, but of its whole surface only a very small portion is

habitable. It is generally rugged, and in consequence of the deficiency of rain mentioned in the general account of South America as characteristic of this coast strip, almost wholly without life or vegetation. It is only where streams, mostly occasional torrents flowing during the rainy season of the highlands and dry for nine months in the year, force their way across this tract from the Andes towards the sea, that verdure makes its appearance and the cultivation of the ground becomes practicable. Hence this region, in which only the transverse valleys, under favourable circumstances, are fit for the abode of man, is generally distinguished as Los Valles. As in Ecuador the Andes in Peru form parallel ranges running in the same general direction as the coast-line. About Cerro de Pasco (10° 40′ S.) the chains of the Andes meet in a ganglion, and to the north of that they separate into three chains, the two to the west inclosing the head-waters of the Marañon, and the two to the east those of the Huallaga. To the south of that ganglion there are only two parallel chains running north and south, but the structure of the Andes is here far more intricate, the two chains being in several places connected by transverse ridges, while the eastern chain is often broken by valleys that intersect the intervening plateaux. A second ganglion occurs at Cuzco and extends to about 15° S., where the Andes again divide into two chains, one of which follows the coast while the other passes south-eastwards into Bolivia. The western chain has a broader crest than the eastern, and its summits are less precipitous except at the top. Towards the inner table-lands it descends in terraces, while the slope of the inner chain is quite regular, and the summits of that chain are mostly pyramidal or conical, and very often sharply conical in form. The coast range has an average height of about 15,400 feet. Its highest peaks are the volcanoes of Misti or Arequipa, upwards of 20,000 feet high, and Gualateïri (21,960 feet), the latter the highest active volcano in the world. The whole of the mountain region of Peru is known generally as the Sierra, but this term is more usually applied in a restricted sense to the higher valleys on the western slopes of the coast chain, and the valleys that intersect the level or gently inclined table-lands between the inner and outer chains. Their elevation is from about 4000 to about 12,000 feet. The table-lands themselves are distinguished by the name of Punas. The principal valleys of the interior Sierra are those of the Rio Jauja and the Marañon, and the principal table-lands those of Cuzco, which descends from an elevation of less than 12,000 feet in the south to about 8000 feet in the north, and Pasco, which, having a general height of 14,000 feet, is everywhere rugged and forbidding in its aspect, and has so disagreeable a climate that nothing but the mineral wealth of the locality could make it a place of abode for man.

The country beyond the eastern Cordillera is imperfectly known, but enough is known of its general character to have earned for it the name of Montaña from being traversed in part by spurs of the eastern Cordillera, and that of "the wooded region," from the impenetrable forests with which both its high-lands and plains are covered.

The coast of Peru is peculiarly subject to subterranean convulsions. Desolat-

ing earthquakes have frequently occurred. Lima has from that cause frequently been laid in ruins, and experience shows that forty-five smart shocks may be expected there in a year. On August 13th, 1868, the whole country was visited with a terrific shock. A large part of Iquique was swept utterly away by the sea, and Arequipa and many other places were destroyed, with a loss of 20,000 lives. On the 10th of May, 1877, Iquique was again overwhelmed by a huge wave due to a submarine disturbance.

RIVERS AND LAKES.—The most important rivers of Peru are those forming the head-waters of the Amazon. Both the Marañon and the Ucayale take their rise in Peruvian territory, the former issuing from Lake Lauricocha on the table-land of Pasco at the height of about 12,000 feet above sea-level, and the latter formed by the union of the Apurimac and the Vilcomayo or Urubamba, both of which descend from the table-land of Cuzco. The Marañon flows for 400 miles between the Cordilleras of the Andes; during the first 150 miles of its course it descends about 10,000 feet through a narrow defile, which lower down spreads out into a wide and fertile valley having a mean absolute height of 3000 feet. About the point where it turns eastwards, about 77° W., it forms a series of rapids, but a little below these it becomes navigable for small vessels, and before leaving Peru it is deep enough to be navigable for vessels of the largest size. On the right it receives first the important tributary of the Huallaga, which descends from Lake Junin, a lake lying at the height of 13,300 feet at no great distance from that of Lauricocha, then the Ucayale, and finally, on the frontier of Brazil, the Yavari. The Ucayale is navigable for large vessels to Sarayacu in about 7° S., and for small vessels still higher; and the Pachitea, an affluent which it receives on the left bank, is also said to be navigable a long way up.

There are numerous small lakes in the mountains of Peru, but the only large lake is that of Titicaca, the largest in South America, and it does not belong wholly to Peru but partly also to Bolivia.

CLIMATE, VEGETATION, AND AGRICULTURE.—The very peculiar climate of the maritime region of Peru excited the wonder of the European discoverers of that country. The absence of rain in this region has already been referred to, and in the general account of South America this rainlessness was ascribed to the influence of a cold marine current that skirts the coast of Peru as well as a considerable part of that of Chile. During the whole year gentle winds from off this cold current prevail, for nine months from the south-west and for the other three months from the south. But though there can be little doubt that without that influence this maritime strip would not have this rainless character, yet Woeikof points out another factor that also plays a part in bringing about the effect under consideration. This other factor is the same as that which we have found to have so important an effect on the climate of America in other ways, namely the lofty mountain system which rises near the west coast. In this particular case the effect of these mountains is to cut off the rarefied atmosphere of the eastern plains from communication with the air above the ocean on the west, so that the indraught of air from that ocean to the land is due solely to the much smaller amount of rarefaction that takes place on the western strip, and is

consequently too weak to convey any air more heavily charged with vapour from the warmer seas beyond. On the west coast of Africa south of the equator a cold current flows northwards similar to that on the west coast of South America, but the fact that the interior table-lands of Africa are not shut off by lofty mountains from the air above the Atlantic, in the same way as the plains of South America are from that above the Pacific, causes such a powerful indraught from the west, that vapour-charged air is brought in abundance from beyond the cold current, and the west coast of Africa is plentifully supplied with rain as far south as about 18° S.

But it is only the lowlands on the coast and the mountain sides at a certain elevation that are wholly or almost wholly devoid of moisture in the west of Peru. For half the year (May to October) the sky is overcast, and the heat of the sun is intercepted by a thick mist called *garua*, which at the height of from 1500 to 2000 feet is deposited in the form of a heavy dew or fine rain. In this region various tropical plants, including the banana, sugar-cane, and sweet-potato, grow with considerable luxuriance. Above that region there is another absolutely rainless region reaching to a height of about 7000 feet; but above that again rises a region which receives abundant rains from November to April, while the lower regions are absolutely cloudless. Vegetation now reappears. Pastures at first scanty gradually increase in luxuriance, and European cereals and fruits are grown on the western slopes of the Cordilleras and on the table-lands of the interior to the height of 10,000 feet. Grain is grown on Sahama even as high as 14,000 feet. The valleys that intersect the table-lands are distinguished by a luxuriance of vegetation that contrasts very strikingly with the general baldness of the table-lands themselves. From the upper limit of this zone to the height of 14,500 feet extends the domain of grasses, with a character wholly alpine, peat-mosses often covering a great extent. The country in general is available only for sheep pasture. Still higher up alpine plants and lichens continue to flourish to an elevation in sunny aspects of perhaps nearly 17,000 feet. The eastern slopes of the Andes have the same character as regards climate and vegetation here as elsewhere within the tropics. (See SOUTH AMERICA.) In the higher parts rains are almost perpetual; lower down, in the Montaña, the rainy season lasts from October to March or April.

The temperature of Peru varies of course with the elevation in the same manner and degree as in the other countries of the tropical Andes. The heat of the coast is excessive. At Lima, 600 feet above the sea, the range of the thermometer is from about 53° to 82°, the mean temperature of the year about 72° Fahr. In the higher valleys (the lower and warmer parts of which are distinguished as the Yungas) the mean winter temperature is about 66°, that of summer about 70°; on the lower Punas the mean temperature of the day in winter 48°, in summer 54°, but the variation of temperature sometimes amounts to 45°. Cold, often piercingly cold, west and south-west winds prevail throughout the year, and at times these are so dry and absorb moisture with such rapidity as even to prevent putrefaction in dead animal bodies. In middle Peru the snow-line on the coast Cordillera is placed by Tschudi at about 17,000 feet, on

the inner Cordillera at about 15,900 feet. The temperature on the eastern side of the Andes is higher than that on the western. At the height of 3000 or 4000 feet *la ceja de la montaña*, the brow of the forest, as it is termed by the Peruvians, presents one of the most charming spots on the earth, enjoying a delicious and equable temperature, matchless fertility, with forest and mountain scenes of incomparable grandeur.

In the lower valleys of Peru are grown all kinds of tropical products, and above all sugar-cane, for which no part of the world is said to be better adapted than the valleys on the coast, where they are fertilized by streams or irrigation channels. The wild plants of the same region include the delicious cherimoya and the granadilla, a kind of passion-flower having an edible fruit. Wine is grown in the neighbourhood of Moquegua, which has been called the Peruvian Bordeaux. The higher valleys and mountain slopes and also the lower Punas produce, besides European grains, vegetables, and fruits of all kinds, among which may be counted the potato, which is grown here of excellent quality and in superabundant quantity, several native tubers, especially the ulluco (*Ullucus tuberosus*), the oca (*Oxalis crassicaulis*), and the maca, a kind of Tropæolum; and also the quinoa, a kind of chenopodium already mentioned as grown in Ecuador, the seeds of which are ground into flour. A kind of soup called *chupe* made from potatoes forms the principal food of the natives, who prefer to have it made from potatoes affected more or less by frost. The principal grass of the Punas is the rush-like ichu (*Stipa Ichu*). Among the trees of the eastern forests the cinchona is conspicuous here, as elsewhere within the tropics, from about 15,000 feet downwards; and further down the coca bush furnishes a very important article of inland trade. Agriculture in Peru is in the lowest condition; the excessive dryness of the west coast, the natural barrenness of the Sierras, the remoteness of the Montaña, or east side of the Andes, with the deficient means of internal communication, all tend to discourage its progress.

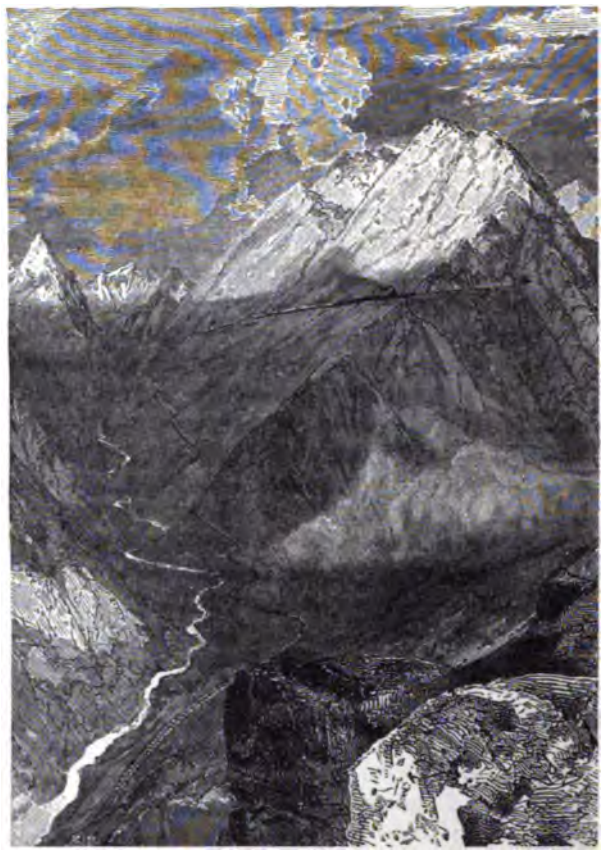
Llama Train on the Andes.

ZOOLOGY.—The fauna of Peru is as diverse as its flora, but on the west

coast, like the flora, is extremely meagre. There are found armadillos, ounces, and pumas, crocodiles and bright-green iguanas, besides pigeons and other birds, but not many creatures else. The llama is found only on the highlands, where the poor Indians, unable to purchase or support mules, still employ it as a beast of burden. The guanaco, the alpaca, and the vicuña remain wild in the mountains, and among other characteristic animals of this region are the puna stag, the roebuck, the vizcacha, and the rabbit-like chinchilla. Above their haunts are to be found only marmots in the hollows, and the condor nestling in the highest rocks. The eastern face of the Andes is as remarkable for its abundance as the western for its want of animal life. Parrots, bats (including the vampire bat), and monkeys are all remarkably numerous, and on the banks of rivers mosquitoes are insupportable. Alligators swarm in the rivers, and in the inundated plains the boa-constrictor attains a terrific size. Pastoral husbandry has made as little progress in Peru as agriculture, and, indeed, it is equally hindered by the natural circumstances of the country. In the maritime region the scarcity and dearth of water, as well as of fodder, make it impossible to keep cattle. All the lucerne which can be grown by irrigation barely suffices for the mules, which are indispensable. On the eastern side, where nature is more bounteous, the insects, and still more the vampire bat, are fatal to cattle. The feeding of sheep on the uplands is for the most part abandoned to Indians.

MINERALS.—The minerals of Peru still form its principal wealth. It is said that gold may be found in all the passes, and nearly all the rivers from the Andes wash down auriferous sands. The chief mines are in the east of the Andes near the sources of the Purus. It is difficult to estimate the amount of gold annually obtained, the business of washing the sands being carried on almost wholly by Indians, without capital or machinery, and with much secrecy. Silver also, which is the chief metallic production of Peru, is very widely distributed, and small mines of it are worked secretly in all parts of the country. But the chief mines of silver are those of Cerro de Pasco, which is hardly inferior in mineral wealth to Potosi in Bolivia. The town stands at the height of 14,275 feet above the sea, and the hill on which it stands is all hollowed out, so that were not earthquakes here very rare the whole would soon be reduced to a heap of ruins. Most of the *bocaminas* or mouths of the mines are within the houses of the miners in the town itself; some of them serve as dwellings. Next in importance to the mines of Cerro de Pasco are those of the province of Chota in the department of Cajamarca. The great height at which the mines are in many instances situated, the impossibility of conveying machinery to them on the backs of mules, the want of timber, the high price of all the necessaries of life, present great difficulties in the way of carrying on mining operations with spirit and profit. In the time of Spanish rule the production of the precious metals was much greater than it is at present. Quicksilver was then also obtained in considerable quantity, and is still produced at Huancavelica. The only other metal of importance now produced is copper; but lead and iron are also present in abundance. Of other minerals by far the most valuable are guano and nitrate of sodium, which form the principal exports of the republic. The former is chiefly obtained on Independencia Bay and

at Iquique. The deposits on the Chincha Islands are now exhausted. The latter is found in more than one locality, and forms immense deposits in the south of Peru, in the province of Tarapaca in the desert of Tamarugal, where borax has also been discovered in great abundance. In the valley of the Huallaga rock-salt deposits occupy an area of 1000 square miles, and the same mineral occurs even on the heights of the Andes. The houses and inclosures for cattle are in many places made with blocks of salt. Good coal is found at Cerro de Pasco and elsewhere. Brown coal is also found on the sandy deserts of the coast, north of Arica; and in the province of Tarapaca there lies underneath the sand a buried forest, the wood of which is neither charred nor petrified. It affords excellent fuel, and is much used in the preparation of the salt-petre found on the same coast.



The Chin Chan above its Junction with the Rimac, showing the Railway to Oroya.

COMMERCE AND COMMUNICATIONS, &c.—As already mentioned the most important articles of export from Peru are guano and nitrate of sodium or cubic nitre, and among those next in importance are the precious metals, sugar, salt; alpaca, vicuña, llama, and sheep's wool; cotton, rice, cinchona, and chinchilla skins. With the interior and the neighbouring states a trade is carried on in brandy, grain, coca, tobacco, &c., besides the chief articles already named. The country that has the largest share of the foreign trade of Peru is Great Britain, which receives nearly two-thirds of the exports, and sends large quantities of cotton goods. The foreign commerce is mainly centred in Callao, the port of Lima, and the principal other ports are Mollendo, Arica, and Iquique. The internal trade of the country has been greatly advanced by lines of railway to the ports, carriage roads, and lines of telegraph. The rail-

way system was commenced in 1852, and has been constructed mainly by the government, though there are also some private undertakings, and two lines have been constructed partly at the cost of the state and partly of private persons. The longest of the lines, that from the port of Mollendo to Puno on Lake Titicaca, is one of the most remarkable achievements of railway engineering, since it is carried across the western Cordillera at the height of 15,700 feet above sea-level (about the height of the summit of Mont Blanc). The Lima-Oroya line is carried through a tunnel at about the same height within a distance of 77 miles from its starting-point, which gives an average gradient of about 1 in 26. Few of the lines are in the meantime financially successful, their construction having been undertaken solely to provide the indispensable means for the development of the resources of the interior. From a report of the British minister and consul-general in Peru for the year 1878 it would appear that on the Mollendo-Puno line only three or four goods trains are run per week. The ports of Callao, Mollendo, Arica, and Iquique, are connected with one another and with Valparaiso by a telegraph cable.

The chief money denomination is the *sole* = 100 *centesimos*, the average rate of exchange for which is 4*s*. The weights and measures of the French metric system were introduced by law in 1860, but the old Spanish ones are those still in general use.

Indians of Huancavelica and of the Coast, and Mendicant.

PEOPLE, LANGUAGE, &c.—Fully a half of the population are probably Indians, a sixth whites, about a fourth of mixed white and Indian race, and the rest Negroes or people containing Negro blood. The Indians are spread over the whole country, but are most numerous in the elevated valleys and table-lands of the interior. With the exception of the wild and little known Indians of the eastern plains, they all belong to the so-called Ando-Peruvian race, and are divided into two great tribes, the Quichuas and the Aymaras, the former found mainly in the north, and the latter forming the bulk of the population in the south of the state. They are sadly declined from what they were in former days under the Incas. Now they seem to be content with the most miserable subsistence, and to show no desire to improve their condition; and their highest enjoyment is said to consist in drinking brandy or chicha, the latter an intoxicating beverage made from maize. The two tribes of the Aymaras and Quichuas give their names to the two principal dialects of the language of the ancient empire of the Incas, a language that still maintains

itself alongside of that of the conquerors, notwithstanding that it has undergone considerable modifications through its contact with the latter. Most of the Creoles themselves seem to make it a point of honour to acquire a knowledge of the aboriginal tongue. By the laws of the republic the Indian is on a level in political rights with the white man, yet the Creole, though conscious of his own enervation, still looks down with contempt on the Indian. The Creoles live principally in the larger towns, more especially the coast towns. The mestizoes or cholos, people of mixed white and Indian race, are physically inferior to the pure Indians. Like the pure Indians they are distributed over the entire state, but are chiefly settled in the elevated interior. Chinese coolies have been introduced, and are employed mainly in the guano diggings and sugar factories. They number about 50,000. Their treatment is far from satisfactory, and since 1874 the immigration has been stopped. Education is in a low condition in all classes, and among the lower orders is wholly neglected. By the terms of the constitution of 1867 there exists absolute political, but not religious freedom, the charter prohibiting the public exercise of any other religion than the Roman Catholic.

Ladies of Lima.

GOVERNMENT, &c.—The present constitution, adopted in 1867, vests the legislative power in a senate and a house of representatives, the senate being composed of two senators for each province, and the house of representatives containing one member for every 20,000 of the population. The members are chosen by electoral colleges. The president is the head of the executive, and next to him in authority is the vice-president. Both are elected by the people for a term of four years. The public revenue is mainly derived from the sale of guano and nitrate of sodium, both of which are government monopolies. A small share is derived from customs duties, but there are no direct taxes. There is a large foreign debt contracted chiefly for the construction of public works (principally railways) and the building of an ironclad fleet, and the internal liabilities have been greatly increased in consequence of the war against Chile which broke out in the spring of 1879, and which has led to the issue of paper money to a large amount. In recent years there have been large annual deficits, and in 1880 the interest on the foreign debt was not paid.

CHIEF TOWNS.—Lima (101,000), the capital of Peru, stands a few miles from the coast, about the middle of the Peruvian coast-line. It is built on both

sides of the river Rimac, and the two portions of the town are connected by a handsome stone bridge. Seen from a distance it presents a rather imposing appearance on account of its numerous domes and spires, but the interior aspect of the city is not so inviting, as the streets are in general ill-paved and far from clean. The centre of life and business is the Plaza Mayor, a handsome square, the sides of which are 510 feet in length, and are adorned with several of the chief public buildings, including the government buildings, the archbishop's palace, and the cathedral. The town was founded by Pizarro in 1535, and in 1571 it was made the seat of a university which still exists, and which is the oldest institution of the kind in the New World. The second town in size and importance in Peru is Callao (34,000), the port of Lima, from which it is about seven miles distant. Its bay, which is semicircular in form and is computed to have an area of about thirty square miles, forms one of the largest and safest natural harbours on the Pacific, a harbour accessible at all times of the year, and in which the loading and discharging of vessels are never impeded by bad weather. The town is, however, a very disagreeable place of residence. The sanitary conditions are very defective, and good drinking-water is at times scarcely procurable. Twice—in 1687 and again in 1764—the town has been utterly destroyed by a huge ocean wave, and several disturbances of the sea in recent years, notably in 1876, give reason for fearing that it is still liable to similar catastrophes. Arequipa (29,000), near the south of the state, is situated at the height of 7775 feet above sea-level, and enjoys a delightful climate. The houses and public edifices are all of stone, generally only of one story, and built with thick walls and vaulted roofs so as to resist the destructive earthquakes by which the region is liable to be visited. Cuzco (18,370), 200 miles north of Arequipa, stands at the height of 11,380 feet. It is the oldest of Peruvian cities, and was formerly the capital of the Incas, with whom it was a place of great magnificence, with spacious streets and splendid palaces and temples, among the latter of which was the Temple of the Sun, richly adorned with ornaments in gold and silver. Pizarro, who took the city in 1534, was himself besieged here by the Peruvians, on which occasion a large part of the old city was destroyed. Iquique (12,000), about lat. 20° S., opposite the island of the same name, from which much guano is obtained, has risen into notice as a place of export for that commodity and for nitrate of sodium, which is found in the neighbourhood.

HISTORICAL SKETCH AND REMAINS OF ANTIQUITY.—At the time of the arrival of the Spaniards in the sixteenth century the ruling classes of Peru were known as the Incas, and according to the traditional account these Incas immigrated into Peru about the eleventh or twelfth century of our era, the legendary account adding that the first Incas were the children of the Sun, who came to the land to impart laws and the arts to an utterly uncivilized people. How much truth there may be in the tradition is quite uncertain. It is doubtful, indeed, if there is any. The legendary story is without doubt wholly false, for there is clear evidence to show that there was civilization in Peru long before the time of the Incas. But whatever may have been the origin of the Incas, it is certain that at the height of their power they ruled over a wide empire extending from the city

of Quito in the modern Ecuador to the Maule river in Chile. Scattered throughout this territory are numerous structural remains belonging to widely separate eras, and some of them dating undoubtedly from a remote though unknown antiquity. The majority of these probably belong to the time of the Incas, but though various explorers have been at work in recent years among the Peruvian antiquities, further investigations are required before the course of early Peruvian history can be deduced from and illustrated by the archæological remains. Among the places at which the most interesting of these remains are to be seen are Tia-Huanaco near the south-east shore of Lake Titicaca in Bolivia, small islands on Lake Titicaca itself, Cuzco the ancient capital of the Incas, where remains of all ages are to be seen, Jauja and Tarma further to the north-west, Huanuco Viejo, Huamachuco, and Coyor in the upper valley of the Marañon, Pachacamac on the coast near Lima, and Gran Chimu on the coast near Trujillo. The structures of which these remains form the ruins are fortresses, palaces, temples, gardens, roads, aqueducts, irrigation works, tombs, &c. The fortress of Cuzco, although certainly a work of great antiquity, belonging to the era of massive Cyclopean masonry, yet, according to one authority, shows in its construction a degree of skill nowhere else to be met with in any work of fortification anterior to the invention of gunpowder. The palaces were sometimes in the neighbourhood of vast gardens laid out in handsome terraces, and irrigated and embellished by fountains and running waters. The temples were dedicated to the Sun, which was the chief object of worship among the Peruvians, although by the more enlightened it seems to have been regarded only as the symbol of a supreme being. The roads, made sometimes of huge blocks of stone fitted together with an accuracy not surpassed in the Appian Way in Italy, sometimes like our macadamized roads, joined the chief towns, and in the time of the Incas runners stationed along the roads at short intervals rendered it possible for the capital to communicate with the provinces in a remarkably short space of time. The aqueducts supplied the towns with water, and the irrigation works afforded the means of carrying on agriculture in the rainless valleys of the west coast on a much more extensive scale than has been practised at any subsequent period. Even at the present day it has been found possible to restore these ancient works and turn them to account, as has been done in the valley of Chicama north of Trujillo. The tombs, finally, contained the mummies of the dead, the measurement of which has enabled us to see how much the Indian has been dwarfed and physically deteriorated by the degrading tyranny which he has endured under the Spanish domination; and besides the mummies they have preserved for modern explorers, ancient illuminations, woven fabrics, articles of pottery and sculpture, graven jewels, and various other relics that show us how the subjects of the Incas lived. Altogether it would appear from the accounts given us by the Spanish invaders and from the evidence of Peruvian remains that the ancient civilization of Peru was one in which there was, indeed, little freedom, but at the same time much order and much well-being of a kind. Political organization was carried to such a length that everything was done under public inspection. "There were village officers who overlooked the ploughing, sowing, and harvesting. When there was a

deficiency of rain, measured quantities of water were supplied by the state." It was the duty of the decurions to see that the people were clothed; and we are even informed that the people were required to dine and sup with open doors, that the judges might be able to enter freely.

This civilization was destroyed when the dominion of the Incas was overthrown by the Spaniards under Pizarro in 1532. From that time till 1821 Peru was subject to Spain, and a Spanish viceroy had his seat at Lima, and was at first at the head of the government not only of Peru, but also of the modern Ecuador and Colombia, Chile, Bolivia, Paraguay, and Buenos Ayres. In 1821 it was declared an independent republic, and its independence was secured by the final victory of Bolivar, who had been proclaimed dictator, over the Spanish forces at Ayacucho on the 9th of December, 1824.

BOLIVIA.

Bolivia, formerly a portion of the viceroyalty of Peru, when it was called Upper Peru, afterwards (from 1780) a portion of the viceroyalty of the Rio de La Plata, has been since 1825, when the Spanish power was overthrown in the territory, an independent republic, and took its present name in honour of Bolivar, through whom its independence was achieved. Its total area is estimated at about 500,000 square miles (five and a half times that of Great Britain), but the provinces in the south-west are now (1881) in the occupation of Chile, and will probably remain with that power when the war waged by it since 1879 against both Bolivia and Peru is brought to a conclusion. The total population is estimated at 2,325,000, or less than 5 to the square mile.

PHYSICAL FEATURES.—The variety of physical aspect as well as of soil, climate, and productions is as great in Bolivia as it is in Peru. The broadest part of the Andes, where the east and west chains of these mountains entering the state from Peru encompass the great Lake of Titicaca and the Lake of Aullagas, 160 miles further south, lies within the limits of this state in its north-western portion. The eastern chain contains Illampu or Sorata, the highest summit of the Andes (24,806 feet), and the two inclose an extensive table-land, the general level of which is about 12,500 feet, while the lowest parts are little if anything below 12,000 feet high. The western boundary of this table-land is nothing but an abrupt and uniform ridge, while the branch of the Andes which forms the eastern boundary throws off numerous long ramifications inclosing valleys which run nearly from east to west, and pour their waters, some into the Pilcomayo, an affluent of the La Plata, and hundreds of others into the Mamore, Beni, and other great affluents of the Amazon. These streams are likely to be, in course of time, of immense importance to Bolivia in developing her commerce towards the Atlantic. Beyond these spurs of the Eastern Cordillera Bolivia presents a new aspect. The hills cease, and are succeeded by a plain, partly

covered, like the hills above, by vast forests, partly consisting of the finest grazing country, known as the pampas of the Mojos, a plain exceeding Great Britain in superficial extent, in which no stone, not even a pebble, is to be found, and which is annually flooded to such an extent by the numerous fine rivers which run through it, that communications by boat are practicable across it in nearly all directions. Beyond this, towards the Paraguay, the plain rises, in general, above the reach of inundation, and rocks and hills of considerable height again make their appearance. Over this tract roam the Chiquitos. Beyond that again, in the south-east, there is a level barren zone of about 20,000 miles in extent, belonging to the Brazilian portion of the Gran Chaco, where there is little besides low thorny scrub with great scarcity of water; but this zone is bounded in the south-west by rich grass plains alternating with forest lands along

Lake of Titicaca.

the course of the Pilcomayo, and in the south-east by a fringe of palm forests, beginning about 20° S., and extending to a distance of from four or five to twenty miles from the Paraguay.

The maritime section of Bolivia, a portion of the desert of Atacama, belongs to the most desolate part of the rainless strip on the west coast of South America. "Imagine," says a recent visitor to this region, "an extensive plain where you can see no sign of life, where you meet with neither birds nor insects, where no plant grows, and where the stillness of the grave is broken only by the raging of the wind, where the ground consists of limestone, and the wearied eye is tormented by the fine dust and the constantly bright sun, where, finally, you may fall in with the skeleton of a quadruped or the remains of a human body. Imagine that, and you may form an idea of what is called the desert of Atacama."

CLIMATE AND PRODUCTIONS.—The climate of Bolivia resembles that of Peru, and here also the tracts belonging to the bright and dry but cold table-land are distinguished as the Punas, and the lower, moister, and hotter regions as the Yungas. The soil of the latter is of admirable fertility, and, when free from dense woods, as it is in most places, is excellently adapted for the cultivation of coffee, cacao, sugar-cane, tobacco, pine-apples, and other tropical products. The agriculture of Bolivia, like every other branch of industry, is very far behind,

and besides the crops necessary for the maintenance of the people, and lucerne, which is grown as a fodder crop, coca, the cultivation of which is a government monopoly, and coffee, are the only agricultural products of any importance. Cattle-rearing is equally far behind, and well suited as the surface is for this branch of industry in certain parts, Bolivia does not even supply its own wants in animal products. Among the natural products of the Yungas of Bolivia (as well as Peru) some of the most noteworthy are the pacay (*Prosopis dulcis*) a leguminous tree of the same genus as the mezquite tree of Texas, bearing enormous pods, the seeds of which are embedded in a soft, sweetish, white, flaky substance used as food; a climbing palm (*Carlodovica funifera*) with thin aerial roots fifty feet long; the copal sumach (*Rhus copalinum*), the resin of which is used by the inhabitants of the woods as a lighting material; and caoutchouc trees, which grow in extensive forests on the lower Beni. The coca-bush also grows wild in great abundance. On the mountains the *Euterpe andicola* ascends to the height of nearly 10,000 feet—higher than any other palm.

Tacora Pass, Western Cordillera of Bolivian Andes.

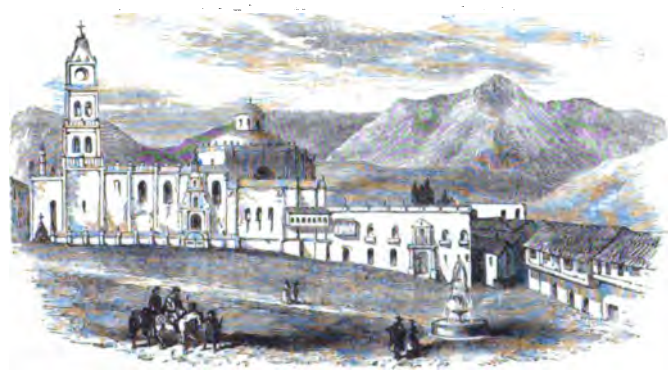
The mines of Bolivia, so famous and productive in the time of the Spaniards (for the Peru of the old Spaniards was no other than the present Bolivia, Upper Peru), are still indeed a source of wealth, but their produce is only a fraction of what it was in former times. The celebrated Potosi, discovered in 1545, was once the richest silver district in the world, and at the close of the sixteenth century, when its productiveness was at its greatest, yielded an annual average of silver to the value of £4,092,000. In the twenty-five years from 1851 to 1875 the average annual value of the silver produced in Potosi and the other silver mines of Bolivia was only £955,300. Gold is also produced in considerable quantity, and the copper and tin mines are valuable. The former are situated at Corocoro on the coast and Atacama near the head of the lake of the same name. In the Bolivian portion of the desert of Atacama there are, besides silver-mines, extensive deposits of guano and nitrate of sodium. These minerals are worked almost exclusively by Chilians, under a treaty with the Bolivian government, which undertook to impose no new taxes on the industry for a term of 25 years; and it was an attempt of the Bolivians to violate this treaty that led to the outbreak of the Chilian war in 1879.

COMMERCE AND COMMUNICATIONS.—The situation of Bolivia presents as great obstacles as the want of industry among its inhabitants to the development of its foreign trade. On the west side there is only a small line of coast (about 100 miles), and that, too, shut off from the interior by a desert and a range of mountains difficult to be crossed; and though on the east there are in Bolivia 3000 miles of navigable rivers (half of them navigable for steamers drawing six feet of water), yet the cataracts and rapids on the Madeira in Brazil still form an interruption to the communication between that system of navigation and the Amazon. A railway to avoid this interruption has long been projected, and though the steps taken to carry out this project have for the present been abandoned, efforts are being made in other ways to develop the commerce of eastern Bolivia. In 1880 a concession was granted by the Bolivian government to a company to be formed in Europe for the colonization and opening up of that part of the republic. In the meantime, though Bolivia has a port of its own at Cobija, the greater part of its commerce is carried on by way of the Peruvian ports of Arica and Mollendo, the customs duties at which ports are divided between Bolivia and Peru. The only railway already open for traffic in Bolivia itself is one from Antofagasta to the rich silver-mines of Caracoles in the south. The principal exports of Bolivia are cinchona, coca, alpaca, and other wool, besides the mineral products of the land, which last are the most important of all.

PEOPLE, &c.—The proportion of the different elements of the population of Bolivia is very uncertain. Probably not more than a fifth, if so many, are of pure Spanish descent, but the mestizoes, who with the people of pure European origin make up according to some accounts less than a half, according to others, much more than the half of the whole population, are reckoned as whites. The settled Indians are mostly of the same tribes as those in Peru—Quichuas and Aymaras, and though Spanish is the national tongue, the dialects of these tribes are generally spoken even by the educated classes. In the eastern plains there are also the unsettled tribes of the Mojos and Chiquitos already mentioned, and also in the north a portion of the Brazilian tribes of the Guaranis. The Chilians on the coast number about 20,000. The most thickly populated provinces of Bolivia are Cochabamba and La Paz, both of which are believed to have a population exceeding 12 to the square mile. As in Peru all forms of public worship except the Roman Catholic are forbidden, and education is almost entirely neglected.

GOVERNMENT, &c.—The executive power in Bolivia is in the hands of a president elected for four years, and the legislative belongs to a congress of two chambers, both elected by universal suffrage. But since 1839 Bolivia has been almost continually distracted by a series of internal and external troubles; and can scarcely be said to have had any definite constitution. There are no direct taxes, and the revenue is principally derived from import duties, export duties on silver, the sale of guano, and a land-tax levied only on pure Indians. The finances are in a wretched condition. No interest has ever been paid on the foreign debt contracted in England in 1872, the principal of which has been mainly spent on lawsuits.

CHIEF TOWNS.—The most populous town in Bolivia is La Paz (76,000), which lies to the south-east of Lake Titicaca at the height of about 11,970 feet, in a green depression which contrasts agreeably with the generally dreary table-land to which the depression belongs. The streets are narrow and mostly devoid of ornament, but the alameda or public park, in the possession of which La Paz rejoices like every other town in Spanish America, though itself adorned with only a few stunted fruit-trees that afford no shade, commands by way of recompense a view of the lofty snow-clad summit of Illimani, from the eastern or hidden slopes of which the town is supplied with sugar and coffee, oranges, pine-apples, and other delicious tropical fruits. The majority of the inhabitants are Aymaras. Cochabamba (40,000), the second largest town of Bolivia, is about 170 miles south-east of La Paz, and lies outside of the table-land in the upper part of the Yungas, at the height of about 8360 feet above sea-level. It accordingly enjoys a much warmer climate than La Paz, and the region round grows abundance of wheat, maize, and barley, with which products the town of Cochabamba supplies the miners of Oruro and Potosi. Cochabamba is also the centre of the trade in cinchona, which is gathered by the Indians in the neighbouring forests and brought here for further distribution. In the interior of the town the houses are tile-roofed, as in La Paz, but on the outskirts there are numerous thatched cabins belonging to the farmers. The inhabitants belong principally to the Aymara tribe of Indians. Chuquisaca, Sucre, or La Plata (24,000), 150 miles south by east of Cochabamba, also lies outside of the plateau, but at least 1000 feet higher than the latter town. It is a Quichua town, and is clean and well-built. The mining town of Potosi (22,600), 40 miles south-east of Chuquisaca, stands at the height of 13,000 feet or upwards above sea-level, and accordingly at an elevation at which the inconveniences and hardships of living are almost as great as at Cerro de Pasco in Peru. It is impossible to say what is the capital of Bolivia, since the seat of government shifts about according to the dominant party. La Paz, Chuquisaca, and the fortified town of Oruro (under 10,000), about 140 miles south-east of La Paz, have each in turn held the honour.



The Grand Place, Chuquisaca.

CHILE.

Chile, or Chili, as it is frequently spelled here and in France, is a republic lying along the west coast of South America to the south of Bolivia, between the Pacific and the Andes, and so narrow that while it has a length of about 2000 miles from north to south, its breadth is only from 25 to 120 miles. Formerly a Spanish colony it may be said to date as a republic from 1810, when it declared its independence of the mother country, but it was not till 1817 that the colonial authority was finally broken in the battle of Chacabuco. The total area as it stood before the outbreak of the war with Bolivia and Peru is given in the *Erdbevölkerung* (1880) at about 124,000 square miles, which area includes the territory (of very uncertain extent) occupied by the independent Araucanians and the large island of Chiloe, but excludes the islands to the south of the Gulf of Corcovado (43° 30′ S.) and the mainland south of 42°, the possession of which was till quite recently disputed between Chile and the Argentine Confederation. By a treaty concluded between the two powers in July 1881 the Andes is to be the boundary line between their territories to Mount Darwin in Tierra del Fuego, but Chile is also to have all that part of the mainland which lies between the Straits of Magellan and a line drawn from Virgin Cape at the eastern extremity of the strait and a point in the Andes in 52° S. and 72° W., this part of the mainland containing a Chilian colony at Punta Arenas. The

Provinces.	Area in sq. miles.	Population in 1878.			Pop. per sq. m.
		Males.	Females.	Total.	
Atacama, ...	38,893	41,524	31,881	73,405	2
Coquimbo, ...	12,906	79,880	82,090	161,970	12·5
Aconcagua, ...	6,226	65,894	69,296	135,190	21·5
Valparaiso, ...	1,591	89,902	89,956	179,858	113
Santiago, ...	7,747	183,657	193,453	377,110	49
Colchagua, ...	3,795	75,265	78,392	153,657	40
Curico, ...	2,913	46,890	49,312	96,202	33
Talca, ...	3,678	55,703	57,154	112,857	30
Lináres, ...	3,489	61,873	59,059	120,932	34
Maule, ...	2,931	58,307	61,661	119,968	41
Nuble, ...	3,556	70,593	71,631	142,224	40
Concepcion, ...	3,577	77,659	78,976	156,635	43
Biobio, ...	4,158	41,329	38,293	79,622	19
Territory of Angol, ...	2,000	11,650	10,032	21,682	10·5
Arauco, ...	8,000	28,172	25,241	53,413	6·5
Valdivia, ...	7,541	16,834	15,744	32,578	4.3
Llanquihue, ...	7,024	26,307	24,461	50,768	7
Chiloe, ...	4,000	32,994	34,446	67,440	17
Colony on Strait of Magellan, ...	—	736	477	1,213	—
Total, ...		1,065,169	1,071,555	2,136,724	
Add 10 per cent believed not to have been enumerated, ...		—	—	213,700	
Unenumerated Indians, ...		—	—	50,000	
Total (in round numbers), ...	124,000	—	—	2,400,000	18

total population, settled and unsettled, was calculated for 1878, on the basis of the results of the census of 1875, at about 2,400,000. The table on the preceding page shows the details.

PHYSICAL FEATURES.—There is no part of South America the surface of which is better known than that of Chile. A government survey of the country was begun in 1848 and continued for many years, and the information collected by this survey and gradually made public has been supplemented by various partial explorations. In the extreme north a small part of the Chilian territory is occupied by a continuation of the Bolivian table-land. Everywhere else the mainland of Chile has for its eastern boundary the main chain of the Andes, and the eastern section of the country is everywhere high and the western section relatively low, though in some places attaining a considerable absolute elevation. The highest part of the Chilian Andes is that which extends from about 31° 40′ to 34° 20′ S., the average height of which is 16,000 feet or upwards, and in the course of which occur the two highest peaks in Chile. These are Aconcagua in 32° 39′ S., rising to the height of 22,415 feet, and Cerro de Mercedario in lat. 32°, which is 22,295 feet high. From about 34° 20′ S. the height of the Andes gradually diminishes southwards, and to the south of 36° 30′ the average height is not above 8000 feet. The breadth of the high and the relatively low sections of Chile varies greatly at different parts. In some places the surface above 5000 feet in height advances to within ten miles of the coast, and in others that under that limit penetrates (along the chief rivers) to a distance of 70 miles and upwards inland. Between 31° and 32° S. the surface rises almost immediately behind the coast (which is for the most part steep and lofty) to upwards of 3000 feet. In the north the Chilian part of the low-lying desert of Atacama occupies a considerable width of surface between the coast and the mountains; but south of that desert, from about 28° 30′ to 33° 30′ S., the tracts under 1500 feet above sea-level are comparatively small, and chiefly on the lower courses of the rivers (the Limari, Aconcagua, &c.). Further south the area below this level becomes more extensive, and to the south of 35° S. a region with few elevations above 1500 feet in height extends from the coast inwards, with an average breadth of about 60 miles, and reaches in the south to the Gulf of Ancud. The highest part of this region forms a line of hills which rises abruptly from the coast and then sinks eastwards, usually in terraces, to an interior valley or plain, which has a gradual slope from north to south, until at last it passes under the sea, so to speak, between the island of Chiloe and the mainland. Chiloe, which is about eleven times the size of Anglesey, is mountainous, though few of the summits exceed 4000 feet in height; and the same character belongs to the islands of the Chonos Archipelago and the islands further south.

The Andes of Chile are highly volcanic. According to Pöppig they include sixteen active volcanoes, among which the most active appears to be that in the neighbourhood of Chillan, about 37° S. Earthquakes are remarkably frequent. At Coquimbo, where the more common but less dangerous *temblores* are distinguished from the more violent *terremotos*, forty-four shocks more or less serious are said to be felt on an average every year. The most destructive Chilian

earthquake on record is that of 1751, by which the former town of Concepcion was sunk in the sea, and almost all the towns and villages from 34° to 40° S. were destroyed. Among the most disastrous of the present century were that of Nov. 19, 1822, by which Valparaiso, Tuillota, Casa Blanca, and Limachi were destroyed, and that of the 20th February 1835, which laid in ruins the present city of Concepcion.

RIVERS AND LAKES.—The rivers of Chile all flow across the country from east to west, even those belonging to the longitudinal valley which slopes down to the Gulf of Ancud, showing that these rivers must have been in existence before that valley received its present inclination. The rivers are consequently all short and generally of little importance as water-ways. Among the most important are the impetuous Maypu, by which the valley of Santiago is irrigated; the Maule, which affords the greatest length of navigation; the Biobio, the largest of all, but navigable in its lower course only for vessels of moderate size; the Rio de Valdivia or Callecalle, the most important of all for navigation on account of the well-protected harbour at its mouth; the Rio Bueno, which is navigable for steamers from Trumao; and the deep broad Maullin, which drains Lake Llanquihue, but the navigation of which is unfortunately interrupted by a fall about the middle of its course. In the south, where the rains are abundant, there are several large and very deep lakes, the chief of which, besides that of Llanquihue, just mentioned, are those of Ranco, Llauquihue, Esmeralda or Lago de Todos los Santos, and Chapo.

CLIMATE.—The very remarkable distribution of the rainfall in Chile has already been sufficiently indicated in the general account of South America, so that it remains here only to add a few particulars regarding temperature. The heat in Chile, in consequence of the influence of the cold Humboldt current, is seldom extreme. On the coast the thermometer rarely rises above 90° Fahr. At Valparaiso the mean temperature of the year is about 58°, that of Santiago is about 55°, and that of Valdivia about 53°. Further south in the longitudinal valley the temperature throughout the year is very mild and uniform. In the summer months cool winds from the Andes as well as the Humboldt current there serve to mitigate the heat, and during the winter the clouds with which the sky is then almost constantly overcast, and the strong winds blowing from warmer latitudes, prevent excessive refrigeration. Ice half an inch in thickness is unknown.

VEGETATION AND AGRICULTURE.—The northern part of Chile to below 28° S., forming the Chilian part of the desert of Atacama, is as destitute of vegetation as the maritime region of Bolivia, and the coast remains without verdure to about lat. 30° S., although further inland the land there begins to be covered with a carpet of green. But it is only about the latitude of Valparaiso (33° S.) that the vegetation of Chile, which is remarkable for the great number of peculiar forms belonging to it, begins to show all its vigour. Of the tree flora of Chile, the most striking feature, considering the comparatively high latitude of the region, is the rarity of trees that shed their leaves. In the north the prevailing trees are of a tropical character and change their leaves gradually

in the course of a year, and further south these give place to evergreens which change their leaves gradually in the course of a longer period. Among the more notable of the Chilian trees are the *Quillaia Saponaria* or soap-tree, so called from having its bark lined internally with a soft whitish substance capable of being used for soap, a tree growing to the height of fifty or sixty feet; a palm allied to the coco-nut, known to the people as the *coquito* and to botanists as *Jubœa spectabilis*, very abundant between 33° and 35°, and important economically from the great quantity of sweet sap which it yields, and which, when allowed to thicken, goes by the name of palm-honey; the *Fagus obliqua*, here called *roble*, an excellent and abundant timber-tree which extends to about 41° S.; the *alerce* (*Fitzroya patagonica*), another excellent timber-tree, the most important of all the conifers, growing to the height of about 175 feet, and forming immense woods between 40° and 43° S.; the very remarkable conifer called by botanists *Araucaria imbricata*, which also grows to a great height, though hardly so high as the last mentioned tree; the *Persea Lingue*, in the province of Valdivia, the bark of which yields an excellent dye-stuff; and the *muermo* (*Eucryphia cordifolia*), a lofty foliage tree which covers large areas in Chiloe and the part of the mainland immediately to the north, and in February is adorned with blossoms visited by numberless bees. The apple-tree has been introduced from Europe, and has flourished amazingly, affording in some provinces the chief food of the Indians. Bamboos extend a long way south, and furnish in certain places the best fodder for cattle; and among other vegetable products which give to Chilian vegetation something of a tropical aspect even in the south are numerous twining and climbing plants, such as the blue-flowering Mutisia, an asteraceous plant, the splendid red *Tropœolum speciosum*, and, most beautiful of all, the *Philesia luxifolia*, a member of the Smilaceæ, with fire-red bell-shaped flowers, which adorn in great numbers the forests of the alerce.

Agriculture is most extensively pursued in the region between Valparaiso and Valdivia, which has sometimes been dignified with the name of the "Garden of the New World." Further to the south the cultivated tracts are somewhat sparsely distributed amidst woods and marshes. Round Osorno there is, however, a cultivated area of considerable extent, and a number of German colonies, all engaged in agriculture, have been planted round the shores of Lake Llanquihue. There is also some cultivation round the deep island-studded bay in the east of Chiloe. North of the river Maule agriculture is dependent on irrigation, which has been practised there on an admirable system from a remote period. Elsewhere agriculture was till recently far behind, but great improvements have been made in this respect, and the best American implements are now largely used. The principal object of cultivation is wheat, but in addition to it maize, oats, barley, excellent hemp, beans, lentils, peas, and potatoes are grown. Both the vine and the olive are likewise tended, and the produce of the former when properly treated is said to yield a wine equal to the best Spanish wines. Immense herds of cattle graze on the pastures north of the river Maule, and the island of Chiloe swarms with hogs, which have gained for the island a reputa-

tion for hams throughout South America. Horses, sheep, and goats are also reared in large numbers.

ZOOLOGY.—The fauna of Chile is not remarkably rich. Pumas are found in the woods, and are very destructive to cattle as well as to other inhabitants of the woods, such as the *pudu*, a small kind of stag, and the *coypu* or native beaver, a dangerous enemy to the potato fields. Both of these latter animals are much more abundant on the islands, from which their destroyer is absent. Among fur-bearing animals the most important are the chinchilla and a kind of fish-otter. Guanacos and vicuñas are numerous in the mountains. Birds are plentiful, and are found in great variety, the commonest kinds being ducks, herons, ibises, flamingoes, parrots, thrushes, and pigeons, besides various sorts of small singing-birds. The Chilian swan, with a pure white body but black head and neck, is also common. Among lizards the iguana may be met with pretty frequently. Several species of turtle abound on the coast, and there also are to be found great numbers of a kind of oyster.

Chilian Costumes, Environs of Concepcion.

MINERALS.—Since soon after the advent of the Spanish mining has been an important industry in Chile. At the present day by far the most important mineral product is copper, which is found in great abundance in the desert region in the north, especially between Copiapo and Coquimbo. In the province of Coquimbo is situated the Tamaya mine, which is regarded as inexhaustible. A considerable quantity of copper ore is smelted in the land itself, chiefly at Caldera, and the quantity has greatly increased since the discovery of coal in Chile. Next in importance to copper is silver, the mining for which has its centre in Copiapo. This metal is found mostly in the valley at the foot of the mountains, in a clayey Jura limestone at a greater distance from the coast than the copper, but is also met with in lumps (*nodados*) in the mountains themselves as high as the snow-line. Gold is found both in alluvium, and in quartzose rock, but is now produced in comparatively small quantity. Among other minerals the only one of importance is a tertiary coal or lignite, the principal bed of which lies to the south of the Biobio extending as far as about 37° S. But there are many other minerals in the land, including sulphur so pure as to need no refining, zinc, antimony, manganese, tin, salt, cubic nitre, &c. Medicinal springs also are numerous, the most frequented being those of Chillan, Apoquido, Cauquenes, and Colima.

COMMERCE AND COMMUNICATIONS, &c.—The foreign trade of Chile is not unimportant, and is greatly promoted by the numerous ports along its seaboard. The principal of these, and indeed the principal port on the whole of the west coast of South America, is Valparaiso, and among the others of importance are Caldera, Coquimbo, Concepcion, Valdivia, Ancud, and Puerto Montt, all of which are visited by transatlantic steamers. Great Britain is the country with which the foreign trade is chiefly carried on, and after Great Britain the countries next in order are France, Germany, Peru, the Argentine Republic, Peru, and the United States. The principal articles of export are the chief mineral products of the land, besides grain (above all wheat) and cattle and their products. Flour is now produced in Chile on a large scale, the flour-mills rivalling the best equipped in the United States, and forms a considerable export, and among the animal products exported are *charqui* (flesh-meat dried in the sun), horns, hides, lard, dried tongues, hams, leather. The imports are chiefly manufactured articles, besides sugar, rice, and cattle. Tea was formerly imported largely, but is now supplanted by maté or Paraguay tea. Chile has now more than a thousand miles of railway, the greater part of which was constructed by the state. The roads also have been greatly improved in recent years. The communication with the Argentine Republic overland is chiefly carried on by means of the passes of Pequeñes on the road from Santiago, 13,800 feet high; Uspallata, on the road from Valparaiso, at its highest point called La Cumbre, 12,800 feet; and Pichachen on the road from Concepcion, 7100 feet. The number of letters annually carried by the post-office is nearly equal to three per head of the population, the number of telegrams delivered equal to about one for every seventeen. The monetary unit is the *peso*, equal to about 4*s*. The French system of weights and measures has been legally introduced, but the old Spanish ones are still in use.

Chilian Costumes, Environs of Santiago.

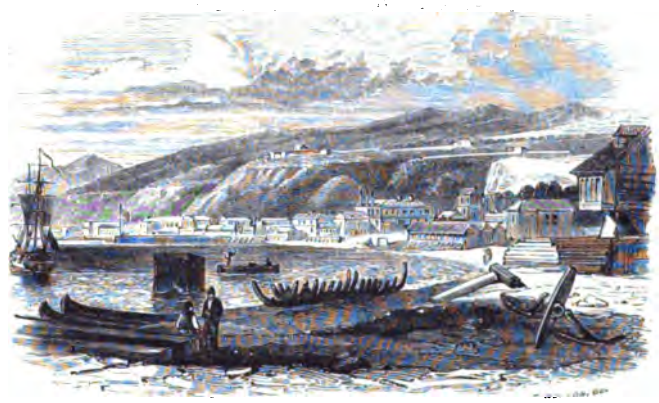
PEOPLE, &c.—The Chilian people are Spanish in language and physique, though it is certain that there is among them a considerable admixture of native Indian blood. At the time of the conquest by the Spaniards in the sixteenth century the greater portion of the present republic of Chile was in the occupation of a native race to the members of which the Spaniards have given the name of Araucanians, although they call themselves *Moluche*, that is, warriors. From the earliest times this race has shown the strongest love of liberty and attach-

ment to their own institutions. In the time of the Incas of Peru the northern tribes appear to have paid tribute to that government, but otherwise to have recognized no external authority; and after the overthrow of the rule of the Incas by the Spanish invaders, it was only the northern tribes that ultimately submitted to the Spaniards, and only their territory that was actually brought under Spanish government. The territory bounded in the north by a line running a little to the south of Concepcion and the river Biobio, in the south by a line running a little to the south of the Callecalle or Rio de Valdivia, in the east by the Andes, and in the west by a maritime strip connecting the Chilian provinces of the north and the extreme south, remained independent under the name of Araucania, and a portion of this area is still occupied by independent tribes, the members of which are estimated to number about 50,000. They are gradually, however, becoming confined to narrower limits as the Chilian towns, garrisons, and settlements encroach upon their territory both from the north and south, while their numbers are being reduced by the process of absorption by the Chilians proper, which has been going on from the first and is still in progress. Although so stubborn in resisting European civilization, they are by no means a barbarous race, but are very favourably characterized both by Spanish and other writers. They live in fixed abodes, and practise agriculture, and since the introduction of horses they have become bold riders. The islands south of Chiloe, including those of the Chonos Archipelago, are almost without inhabitants.

The population of Chile is thickest in the middle, between the desert region in the north and the Araucanian territory in the south. The aggregate area of the three provinces of Valparaiso, Santiago, and Concepcion is equal to about 10½ per cent of the whole area of the republic, and their population to about 30 per cent of the total population. Among the Chilians there is a considerable proportion of foreigners. These include chiefly Germans and North Americans as agricultural colonists in the extreme south, the former chiefly round the shores of Lake Llanquihue, natives of the Argentine Republic among the miners in the north, and French, English, and North Americans in the middle provinces, where they have in their hands a large part of the foreign commerce and the manufacturing industry of the state. The Chilians themselves emigrate in large numbers, a fact ascribed by some to the land system in operation. Almost all the cultivable area is in the possession of large proprietors, so that the poorer agricultural labourers have great difficulty in becoming owners of so much land as would enable them to support a family, to obtain which they emigrate to the Peruvian plateau or the neighbouring provinces of the Argentine Confederation. The religion of the state is Roman Catholic, which was formerly the only religion tolerated, though since 1865 perfect toleration has been granted to every other creed. For the education of the people Chile has done more than any other of the South American republics, and the university of Santiago gives a very fair account of the higher education.

GOVERNMENT, &c.—The republic of Chile is the best regulated of the South American republics, and though as a Spanish colony it was one of the least important in the New World, as an independent state it has attained a higher

degree of prosperity than any of the others. The constitution, which dates from 1833, vests the executive authority in a president and a council of state, the former chosen for five years by delegates elected by the people, and the latter consisting of five departmental ministers and nine other members all nominated by the president. The legislature is composed of a senate, consisting of twenty members, elected for nine years; and a house of deputies, consisting of a member for each 20,000 inhabitants, elected for three years. All the electors must be able to read and write. The finances of the republic are in a tolerably satisfactory condition. More than one-half of the revenue is derived from customs duties, the remainder chiefly from state railways and certain monopolies. The home and foreign debt of the country entails a charge equal to more than one-sixth of the entire revenue. The internal debt has recently been increased in consequence of the war with Bolivia and Peru. The army is raised partly by conscription, partly by voluntary enlistment.



Valparaiso.

CHIEF TOWNS.—Santiago, or, in full, Santiago de Chile (130,000; with suburbs 150,000), the capital of Chile, stands on a large and fertile plain at an elevation of about 1800 feet above sea-level, and about 90 miles east-south-east of Valparaiso. It is very regularly laid out, and covers a large extent of ground, the streets being made very wide and the houses generally only of one story on account of the liability of the site to earthquakes. Many of the houses are built in the style common in southern Spain, with gardens and courts (*patios*) in the interior. The view towards the Andes is here wholly unobstructed and is of the most magnificent description. The town was founded in 1541 by the Spanish conqueror Valdivia. Valparaiso (98,000), the port of Santiago, is situated on a fine bay looking towards the north, and affording excellent shelter for shipping except during the prevalence of north winds. It contains among its inhabitants a very considerable proportion of foreigners, among whom English are the most numerous. The town has risen to its present importance since the separation of Chile from Spain. In 1819 it had no more than 5000 people in it. Concepcion (18,000), in about 36° 50′ S., has a considerable foreign trade in agricultural products, and the inland town of Chillan (19,000), east-north-east of Concepcion, is the centre of a rich agricultural district.

ARGENTINE CONFEDERATION.

The Argentine Confederation (*Confederacion Argentina*) is a group of states and territories occupying the interior of South America from 22° S., where it borders on Bolivia, to the Rio de la Plata, to the south of that estuary the whole of South America east of the Andes as far as the limits mentioned in the account of Chile. It thus includes almost the whole of the plain of Patagonia. With Paraguay the river Pilcomayo now forms the boundary west of the Paraná. Formerly the triangular tract belonging to the Gran Chaco inclosed between these two rivers and the parallel of 22° S. was claimed both by Paraguay and the Argentine Confederation, but the president of the United States of North America having been invited to act as arbiter in the dispute, assigned the territory to Paraguay, to which state it was actually handed over in May, 1879. The following table shows the area of the Confederation within the limits assigned to it before the recent treaty with Chile. The area given to Patagonia thus includes the whole of the mainland south of 42° S., and all the islands south of about 43° 30′ S. The areas of the different provinces are the results of planimetrical calculation, the official figures being much too large. The populations are those of 1869, the first and only census. Since that date the population is estimated to have increased to 2,400,000.

	Area in sq. miles.	Population, 1869.			Pop. per sq. mile.
		Males.	Females.	Total.	
STATES OR PROVINCES.					
Buenos Ayres, ...	76,490	274,873	220,234	495,107	6·5
Santa Fé, ...	38,500	49,375	39,742	89,117	2·3
Entre Rios, ...	25,860	71,531	62,740	134,271	5·2
Corrientes, ...	22,403	63,103	65,920	129,023	5·8
Cordoba, ...	55,567	100,525	109,983	210,508	3·8
San Luis, ...	23,427	25,189	28,105	53,294	2·3
Santiago, ...	31,045	66,017	66,881	132,898	4·3
Mendoza, ...	34,052	32,291	33,122	65,413	2·0
San Juan, ...	33,285	29,029	31,290	60,319	1·8
Rioja, ...	34,628	22,775	25,971	48,746	1·4
Catamarca, ...	42,182	38,650	41,312	79,962	2·0
Tucuman, ...	12,030	53,382	55,571	108,953	9·0
Salta, ...	32,516	44,745	44,188	88,933	2·7
Jujuy, ...	24,067	20,105	20,274	40,379	1·7
TERRITORIES.					
Gran Chaco, ...	125,650	?	?	45,291	—
Missiones, ...	23,683	?	?	3,000	—
Pampas, ...	192,028	?	?	21,000	—
Total, ...	827,420	?	?	1,812,490	2·2
Patagonia, ...	350,890	?	?	24,000	—
Grand Total, ...	1,178,310	?	?	1,836,000	—

PHYSICAL FEATURES.—The territory of the Argentine Confederation is described in general terms by Dr. Burmeister, director of the museum at

Buenos Ayres, as consisting of "a plain sloping from north-west to south-east, out of which rise, from the western boundary to the middle of the land, several narrow and for the most part low mountain chains, almost all of which stretch from north to south and have a rather steep western slope, and a broader and more gently inclined eastern slope, and consist almost entirely of metamorphic rocks with isolated granite peaks. From these mountain chains and from the Cordilleras come only comparatively small rivers with little water, all of which follow at first the same general direction, from north to south, but afterwards as a rule, in accordance with the general slope of the plain, turn to the south-east, making for the Rio Paraná, but for the most part not reaching that river, since many of them dry up before arriving." (*Supplement to Petermann's Mittheilungen*, No. 39, 1875.) But though, as appears from this general description, the principal elevations of the Argentine are in the west (more particularly in the north-west), yet the rest of the territory is far from being a uniform plain. In the eastern pampas (between 36° and 38° S.) there are ranges of low hills, and recent explorers have discovered that there is even "majestic scenery" in the pampas further west.

The extreme north-west of the Argentine Confederation forms a part of the Bolivian plateau, known as the Puna of Jujuy or the Despoblado (unpeopled), and is an utterly sterile region, in some parts 13,000 feet in height, without water and without inhabitants. From the boundary of this plateau, which runs from south-west to north-east, run a number of mountain chains towards the south, as sterile as the plateau itself, and inclosing a number of valleys or ravines almost equally desolate, for it is only here and there that a little grass is to be found in them to pasture the traveller's horses. These mountain ranges and ravines terminate in a depression having the same general direction as the boundary of the plateau, the depression through which the Rio Grande de Jujuy flows in the north-east to join the Rio Vermejo, and the Rio Huachipas in the south-west to join the river Salado. South of the point of junction of the Huachipas and Salado another mountain range commences with the usual north and south direction, and gradually increases in height until between about 26° and 27° 30′ S. it forms the Sierra Aconquija, the second highest of the mountain systems belonging entirely to the Confederation. It has several ridges rising above 17,000 feet in height, and while it presents a steep slope to the west, it sends out to the east for a considerable distance a number of well-wooded offsets, which terminate in a fertile plain watered by the Rio Dulce and its tributaries. To this region that on the west of the Sierra Aconquija itself, and of the lower ranges which proceed from it further south (to nearly 30° S.), presents a complete contrast; for the latter is a barren plain, without even grass, separating these mountains from those further west which run parallel to the Chilian Andes. These latter mountains begin, like those further north, in a desolate plateau, a continuation of the plateau belonging to both Chile and Bolivia which rises behind the desert of Atacama, and has an average height of nearly 14,000 feet, with peaks rising to above 19,000 feet. In the Argentine Confederation it extends unbroken to about 28° S., where it begins to be cleft by longitudinal

valleys, which gradually widen out till they separate into three distinct mountain chains, the easternmost of which, the Sierra Famatina, is the highest range of mountains wholly within Argentine territory. Several ridges in it rise to the height of 17,400 feet, and the culminating summit of the range, the Nevado de Famatina, is 19,760 feet high. The western sierras are considerably less lofty, and the numerous shorter sierras stretching away to the south are lower still. East of the Sierra Famatina there runs parallel to it, but completely separated from the plateau by the valley of the Rio Colorado, the long Sierra Velasco or de la Rioja, the highest ridges of which hardly exceed 8500 feet. Nearer the middle of the Argentine territory there rises a completely isolated mountain system, the principal range in which is the Sierra de Cordoba or de Achata, culminating in the peak known as the Gigante, about 7500 feet high. Still lower are the ranges of the south-east, between 36° and 38° S., the highest ridge of which, the Sierra Ventana, about 38° S. and 62° W., does not attain a greater elevation than 3400 feet; and regarding these ranges it is also to be noted that their general direction from south-east to north-west is quite different from that of the other sierras of the Confederation, and points to the fact that they belong to a different system of elevation from the rest.

Of the plains of the Confederation by far the largest is that which stretches between the mountains of the north-west and centre and the rivers Paraguay and Paraná down to the latitude of Santa Fé. Its surface is in general very uniform, its slope very gradual. At Corrientes, a little below the junction of the Paraguay and Paraná, the height above sea-level is only about 200 feet, and at the confluence of the Pilcomayo and Paraguay it is still under 300 feet. Adjoining this plain on the east lies the plain between the Paraná and Urugnay, which has been called the Argentine Mesopotamia (Entre Rios). The character of this latter plain has more resemblance to that of Uruguay and Southern Brazil than to that on the west of the Paraguay and Paraná. It is traversed medially by a range of low hills, besides which there are several subsidiary ranges, and at many places narrow depressions occur. In general the surface may be described as undulating. In the west there lies the barren plain already mentioned as separating the mountains of Aconquija from those further west, and which is continued with the same barren character southwards behind the central mountain system and then south-eastwards through the pampas. It includes a vast salt steppe, or rather a series of salt steppes, covered partly with incrustations of salt and partly with salt marshes. Further to the west below about 30° S. a narrow plain of a more fertile character, being capable of cultivation by means of irrigation, advances up to the western sierras. In the south-east again, from about 32° S. to the Bahia Blanca, lie the fertile pampas forming an almost unbroken plain except where traversed by the ranges of hills already mentioned. Beyond the Rio Colorado the surface begins to assume the inhospitable character which prevails throughout the Patagonian desert. Between the Rio Colorado and the Rio Negro the ground is for the most part covered with a thin layer of fine sand, which is almost constantly swept either by hot and violent winds from the north, or by cold winds from the Cordilleras, and is by

these now heaped up into downs now dispersed again over the surface. Further south, in Patagonia proper, the soil changes its character, becoming firm and hard, but remaining equally unfit for cultivation, even if the climatic conditions allowed it, and equally unfavourable to natural vegetation.

Where it tapers to the south Patagonia is separated from the mountainous and densely wooded islands of Tierra del Fuego by the Strait of Magellan, discovered and first navigated in 1520 by the Portuguese navigator Magalhaens, or, as he was called by the Spanish, in whose service he then was, Magellan. The strait is about 300 miles long, has strong tides, and is of difficult navigation, more especially for sailing vessels. The western half of the strait is bounded by naked cliffs generally about 3000 feet high, but from Cape Froward north-eastward the shores gradually sink in height and ultimately become quite low and flat. It may here be mentioned that a very simple postal arrangement is maintained in the Strait of Magellan. A small box for the reception of letters, &c., is fastened by a chain to the rock on the outermost promontory of the strait opposite Tierra del Fuego, and all passing ships examine the contents of this box and undertake the forwarding of all letters intended for places lying in their route or capable of being reached from such places.

RIVERS AND LAKES.—The rivers of the Argentine Confederation offer in general great hindrances to navigation. They all have a broad and shallow bed and little volume, and are all remarkable for the number of their windings in their course through the plain. Even the Rio Paraná is constantly changing its bed and forming new shallows, demanding uninterrupted watchfulness on the part of navigators, at least if their vessels have a considerable draught of water. Of the two great, or at any rate long tributaries of the Paraná and Paraguay on their right bank, the Salado is hardly navigable at all, and the Rio Vermejo only with difficulty as far up as about 24° 10′ S. The rivers originating in the Cordilleras or the sierras immediately to the east all dry up before reaching the sea, until we come to the Rio Colorado. Both it and the Rio Negro, as well as the other Patagonian rivers, are navigable at least half way up, but, as we have seen, flow through a region in which their navigability is of little importance. The Uruguay, on the eastern frontier, is the only river of the Confederation which has a large volume of water. It is broad and forms an admirable waterway as far up as the Saltos (cataracts), about 31° 5′ S., above which the navigation is only of local importance. The estuary belonging to both the Paraná and the Uruguay, known as the Rio de la Plata or River Plate, has a number of submarine banks all round its coasts, making the water so shallow as to allow of the approach only of vessels of light draught. A large bank known as the Ortiz bank lies between the shores but nearer the northern one, and there are other smaller ones elsewhere. The lakes of the Argentine Confederation are for the most part either temporary lakes or salt marshes. Those on the left bank of the Paraná generally contain fresh water, but those elsewhere are mostly of salt water, and leave, when they dry up, an incrustation of salt on the ground.

GEOLOGY AND MINERALS.—All the elevations of the Argentine territory from the margin of the Atlantic Ocean to the foot of the branches of the Andes

appear to consist of the oldest igneous and metamorphic rocks; and the first true sedimentary rocks, which are to be met with on the western plateau and its appendages, belong to the palæozoic series down to the carboniferous strata. Secondary formations are hitherto unknown. On the east side of the land the tertiary series, which is very beautifully exposed on the bank of the Paraná, and is there plainly seen to be of marine origin, rests immediately on metamorphic slates; and the same series appears to extend far to the west, and even, according to Burmeister, to the foot of the Andes; and the whole surface of Patagonia belongs to it also. Above the rocks of the tertiary series in the Argentine plain, though not in Patagonia, rests a marly clay to which the name of the Pampas formation has been given. In certain places the calcareous constituents of this clay are so abundant as to consolidate it into hard banks known to the people as *toscas*. The average thickness of this stratum is from 40 to 50 feet, and above it lies an alluvial deposit usually from two to three, seldom above five or six feet thick.

The mineral wealth of the Confederation is very abundant. Silver and copper are abundant in the mountains of the west, where gold also is found. Iron exists in the province of San Juan, and in the same province round the southern extremity of the Sierra de la Huerta there is a large bed of workable bituminous coal. Lead is to be found in the plains, and there also, partly on the dry surface and partly in the beds of temporary rivers and lagoons, are to be obtained inexhaustible quantities of various kinds of salts. In the northern province of Salta there is porcelain earth, and in the province of Jujuy still further north excellent petroleum is among the mineral products.

CLIMATE.—The climate of the Argentine Confederation, though necessarily varied, is on the whole healthy. In the level parts of the northern provinces a tropical climate prevails, with warm temperatures, heavy summer rains, and almost complete rainlessness in winter. The heavy summer rains cease between 25° and 27° S., and below that latitude the rainfall is very irregular, and often very deficient. On the coast between the Rio de la Plata and the Bahia Blanca the climate is mild and the variations of temperature moderate. At Buenos Ayres the mean temperature of the year on an average of 20 years was found to be 63° Fahr., the mean July temperature 51°, the mean January temperature 76°. The rainfall is pretty equally distributed over the year, and the average annual amount is about 34 inches. Throughout Argentina proper snow is rare except in the mountains. The winds are more violent in the south than in the north. The hot north winds are specially frequent. The south-west winds which sweep over the pampas, and are hence called *pamperos*, not uncommonly rage with terrible fury, but coming as they do from the heights of the Andes they cool the air and exercise a wholesome influence.

VEGETATION AND AGRICULTURE.—The only densely wooded part of the provincially organized territory of the Argentine Confederation is that already referred to on the eastern side of the Aconquija Mountains, where a variety of laurel trees are among the most conspicuous forms. The whole of the Gran Chaco ("great hunting-ground") with the northern part of the province of Santa

Fé is also wooded, but the woods of this region have a very different aspect from those of the eastern branches of the Aconquija. There the woods are much thinner and the most characteristic forms are tall candelabra-like cactuses, and quebrachos, including both the white quebracho, a lofty spreading tree with bright-green drooping leaves, and the red-wood quebracho, a tree with scanty foliage, but furnishing excellent timber, which has the great advantage of not being liable to rot under ground. One genus of palms (Trithrinax) is represented as far south as San Pedro (nearly 34° S.), and further north two or three species of Cocos (the coco-nut palm genus) are abundant on both sides of the Paraná. One of these, the *Cocos Datil*, yields a fruit resembling the date. In the western part of the territory, where, on account of the deficiency of rain, vegetation is generally scanty, the only woods to be seen are the very sparsely grown thickets of *Prosopis dulcis*, the tree that we have already become acquainted with in Bolivia, as a congener of the North American mezquite-tree, under the name of pacay, and which is here called *algarrobo*, from the resemblance of its pods to those of the carob-tree, the true algarrobo. Such thickets are to be seen only in certain localities where the soil is more favourable to vegetation; and elsewhere in the west the only natural vegetation to be seen consists of more or less extensive expanses of grass, and patches of brushwood composed chiefly of small-leaved Leguminosæ armed with long spines. In the south-eastern provinces, namely the Argentine Mesopotamia, with Buenos Ayres and the southern part of Santa Fé, the surface is mostly covered with pasture-grasses, the most conspicuous of which is the beautiful pampas-grass, called by the people *totoras* and by botanists *Gynerium argenteum*, a grass often cultivated in our gardens on account of its silvery panicles with a silky lustre. Between the rivers there is much wood in the hollows, and the extent of the forests increases towards the north-east, the territory of Misiones having well-wooded sierras in addition to well-wooded river-banks. On both sides of the Paraná and Paraguay certain cultivated trees are also plentiful, and the most important of these, besides the native tree or shrub yielding Paraguay tea, which has been already mentioned under BRAZIL, and will be more particularly noticed under PARAGUAY, are the European fruit-trees, the orange and peach. Both of these thrive wonderfully in this region, the orange as far south as 32° becoming even when left to itself a magnificent tree, and the peach, which propagates itself in this quarter with greater facility than any other tree, reaching still further south. The pampas proper south of the latitude of Santa Fé are entirely destitute of trees, the only substitute for which is a native willow (*Salix Humboldtiana*) which grows on the banks of the larger rivers. The chief wealth of this region accordingly is in the rearing of **live stock**, especially sheep, cattle, and horses. Sheep-rearing is here an industry of comparatively recent origin, but since the introduction of French merino-sheep and the fine-woolled sheep of Germany it has been pursued with such success, not only here but in other parts, that it bids fair to become the leading industry of the Confederation. Cattle and horses, on the other hand, have long been reared, and enormous herds of these animals are tended by mounted drovers of partly Indian partly Spanish origin, known here, as in Uruguay, by the name of Gauchos. In

the management of these herds (as in the hunting of wild animals) the *lasso* and the *bolas* are indispensable implements. Both of these consist of a long rope or oxhide thong, one end of which is fastened to the saddle and the other end free, while the lasso has at its free end a running noose, and the bolas an arrangement of iron balls or other heavy pieces of metal, stone, or wood, two or three in number, attached by shorter thongs of equal length. In using the lasso the Gaucho has to throw the free end in such a manner that the open noose will pass over the neck of the animal he wishes to catch, and in using the bolas he first takes one of the balls in his hand and swings the other or others round his head, then throws the rotating system of balls at the animal, which is at once arrested by the thongs twisting round whatever part is struck. Such is the skill with which these implements are used that the Gaucho will effect his purpose by either even when riding at full speed. The Argentine horse is small and rather heavy in its make, but docile, swift, and remarkable for its endurance.

The chief **cultivated products** of the Confederation are the European grains and roots, besides sugar and some other products of a warmer climate, wine, and various fruits. Cereals are grown more or less round most of the towns, but the region best adapted for cultivation is that in the north-west beyond the limits of the desert plateau and its mountainous continuations—the region occupied by the provinces or part of the provinces of Jujuy, Salta, and Tucuman. This is the only region in which sugar is grown, as well as tobacco. Parts of it are also well fitted for the cultivation of coffee, cacao, and indigo, and Tucuman grows excellent fruits, including figs and olives. The Gran Chaco, though well adapted for agriculture, is hitherto unsettled. The western provinces, Catamarca, La Rioja, San Juan, and Mendoza, have a hot dry climate, which makes agriculture dependent on irrigation, but wherever grass is found or lucerne can be grown are well suited for cattle-rearing. This also is the principal fruit region of the Argentine territory. The raisins and dried peaches of Mendoza have a high reputation in the country; and in that province also, as well as San Juan and Rioja, the vine is tended, though the product has hitherto been made to yield only an indifferent wine. The central provinces, San Luis, Cordoba, and Santiago, are the poorest of all the organized provinces of the Confederation, containing only a small area of pasture grasses, and a still smaller area on which agriculture can be carried on by means of irrigation.

The tract between the Bahia Blanca and the lower Colorado belonging to the unorganized territory to the south-west of Buenos Ayres is one of the most barren on the face of the earth. Further up on the left bank of the Colorado, a region not yet well known, the vegetation is more varied, but good grasses, including pampas-grass, are said to be found only where there are small fresh-water lakes, in the neighbourhood of which algarrobo thickets inclosing extensive pastures are often also to be found. In the Patagonian Entre-Rios, as it is called, the region namely between the Rio Colorado and Rio Negro, the vegetation is the most uniform imaginable. On the banks of both rivers a few cultivable spots are to be found, but almost the entire surface is covered with dry woody

Leguminosæ, spiny cactuses, and other thorny shrubs, and the same character belongs to the still scantier vegetation of the Patagonian plain.

ZOOLOGY.—Among native animals rodents are abundant, and of these the most notable are the water-hog, the largest of all rodents; the vizcacha; the perversely named guinea-pig; and the tucotuco (*Ctenomys Braziliensis*), a small rodent with the habits of a mole. Beasts of prey are not very numerous, though the jaguar is met with in the east and the puma in the west. There are a few ruminants, among them the guanaco and the graceful little pampas-deer (*Cervus campestris*), a few pachyderms, many kinds of birds, including large numbers of swans, partridges (tinamous), which are particularly abundant in the pampas, and the American ostrich (especially in the south), besides bees, ants, serpents, &c.

COMMERCE AND COMMUNICATIONS.—The foreign trade of the Argentine Confederation, about three-fourths of which passes through Buenos Ayres, is mainly carried on with the United Kingdom, France, and Belgium, the first of these countries sending a larger share of the imports than any other, while the remaining two each receive a considerably larger share of the exports. With the exception of ores and metals, which form a small proportion of the exports, almost all the exports of the Confederation consist of animals and animal products, the latter principally wool, hides and skins, tallow, and salted meat. Ostrich feathers are also among the number. Besides manufactured goods the chief imports are coal and iron. Nearly 1500 miles of railway have already been constructed within Argentine territory, partly at the expense of the national government, partly at that of the provincial government of Buenos Ayres, and partly at that of private (English) companies. Among the lines projected is an interoceanic line, 883 miles in length, from Buenos Ayres to Chile. The number of letters annually carried by the post-office is equal to about two per head of the population, the number of telegrams delivered less than one for every ten of the inhabitants. The monetary unit is the silver *peso fuerto*, equal to about 4*s*. The weights and measures in use are the old Spanish.

PEOPLE, &c.—The settled population of the Argentine Confederation is composed of whites, mestizoes, mulattoes, Negroes, and civilized Indians. The bulk of the population, especially in the country districts, consists of people of mixed race. Pure Negroes (introduced as slaves from 1702 onwards) and pure civilized Indians are not numerous, and pure whites would also be few were it not for the considerable accessions which the Confederation derives from immigration. At the census of 1869 there were in Argentine territory 212,000 people of foreign birth, more than a ninth of the whole settled population. Of these about one-third were Italians, one-fifth Americans, one-sixth Spanish, and one-sixth French. Since then the flow of immigration has been even more rapid than it was previously, as many as 76,000 having arrived in a single year (1873). The great majority of the immigrants are natives of Italy and Spain. The provinces in which the immigrants chiefly settle are those in the neighbourhood of the Rio de la Plata, namely, Buenos Ayres, Santa Fé, and Entre-Rios; and it is in consequence of this that, as the table shows, the males in these provinces greatly

exceed the females in number. At the same time the natural increase of the population is found to take place with unusual rapidity. In some provinces it has been ascertained that the births are on an average twice as numerous as the deaths. Negroes ceased to be introduced as slaves at the time of the separation from Spain, and slavery itself was abolished in 1853. The uncivilized Indians, estimated at less than 100,000, are found principally in the north of the Gran Chaco, where they belong mainly to the family of the Guaranis, and in Patagonia, where they are akin to the Araucanians of Chile. Among the Guaranis the most advanced tribe appears to be that of the Chiriguanos, who are described as intelligent, clean, and sufficiently industrious to maintain themselves in a condition of tolerable comfort, and who are said to present a strong contrast to the adjoining tribe of the Matacos, a filthy, brutal, taciturn race. The settled parts in the vicinity of the uncivilized Indians, especially those of the south, have long been exposed to inroads of these savages, but in 1879 the Indians of the pampas were all driven across the Rio Negro, which, with the line of forts now established along that river, is expected to prove an effectual barrier against all such incursions in the future. The Patagonians proper, thinly scattered over the south of Patagonia, where they live by hunting, are remarkable for their lofty stature, and owe their name to Magellan, who called them Patagonians from the large size of their feet, *patagon* in Spanish meaning a large clumsy foot. On the cold and rainy islands in the south, of which Tierra del Fuego ("the land of fire") is the chief, there are only a few inhabitants resembling the Patagonians in the north-east, and a few of different aspect, short in stature and ill-proportioned, in other parts. As already mentioned under CHILE there is a Chilian colony at Punta Arenas in the north side of the strait.

Natives of Patagonia.

The state religion is Roman Catholic, and dissidents are to be found only among the immigrants. Formerly the church was rich, but at the time of the revolution all its property was confiscated, and the cathedral chapters (of Buenos Ayres, Cordoba, Cuyo in San Juan, Salta, and Paraná) now derive very moderate

revenues from the national treasury, while the priests have to look chiefly to fees and the proceeds of ecclesiastical festivals for their income, though they too are partly supported by government. Until quite recent years very little had been done for education. Universities have been founded at Buenos Ayres and Cordoba. The official language is the Spanish, but the natives speak three chief dialects.

GOVERNMENT, &c.—The constitution of the Argentine Confederation, which dates from 1853, intrusts the executive authority to a president elected for six years by representatives of the different provinces, 133 in number, and the legislative authority to a national congress, consisting of a senate and a chamber of deputies, the former composed of two members for each of the fourteen provinces, and the latter of one for every 20,000 inhabitants. The senators are chosen for a term of nine years by the provincial assemblies, and the deputies elected by the people for a term of four years. The revenue is mainly derived from import and export duties, and more than half of it is required to meet the expenses of the public debt, home and foreign. Besides the national government there is a separate government for each of the fourteen provinces. The provincial governors are elected for a term of three years. Thus far the only province which has contracted a foreign debt is that of Buenos Ayres.

CHIEF TOWNS.—Buenos Ayres (in 1869, 178,000), on the southern shore of the Rio de la Plata, is the only large town in the Argentine Confederation, and is the Federal capital as well as capital of the state or province to which it gives name. The city itself owes the name, meaning "good air," to the excellence of its climate, and till 1867, when it was first visited by cholera, which was followed in 1871 by yellow fever, both visitations undoubtedly due to bad drainage and a defective supply of water, it enjoyed a degree of salubrity worthy of its name. Steps have since been taken to remedy both the defects to which its calamities were due. The city is built with the regularity characteristic of so many American cities, and is situated amid well-cultivated environs, plentifully studded with the country houses (*quintas*) of the rich. Among its public institutions may be mentioned several asylums for immigrants, in which immigrants are received and maintained until suitable employment can be found for them. Although an important shipping centre Buenos Ayres has no harbour, and the difficulties in the way of constructing one are so great that it seems likely that the city will have to content itself with forming its harbour at Ensenada, a place twenty miles lower down on the La Plata, with which it is already connected by rail. Large vessels can only come within eight or nine miles of the town, and there they unload into boats. The town was founded by Don Pedro de Mendoza in 1535, but being destroyed by Indians was recolonized in 1580. Cordoba (29,000), capital of the province of the same name, about 400 miles north-west of Buenos Ayres, is the second town in size in the Confederation and the centre of communication between Buenos Ayres and the inland provinces. It was founded in 1573. Tucuman (17,000), the capital of the most thickly populated province in the Confederation, about 330 miles north by west of Cordoba, with which it is now connected by rail, stands on one of the head-

waters of the Rio Dulce and is the centre of the most important agricultural district in Argentina. Salta (12,000), 130 miles further north, is likewise an agricultural centre of some importance. Mendoza (8000), about 33° S., is the principal town in the far west, but is surpassed in population both by Corrientes and Santa Fé as well as the other towns already mentioned in the east and north. It is the chief focus of the trade between the Confederation and Chile, with which it communicates by means of the pass of Uspallata or Portillo de la Cumbre. See CHILE, Commerce and Communications.

HISTORICAL SKETCH.—In 1515 Juan Diaz de Solis sailed up the Rio de la Plata and formally took possession of the adjacent territory in the name of Spain, but it was not till 1535 that the first Spanish colony was founded, and not till the latter half of that century that any great advances were made in the settlement of the land. In 1610 the Jesuits began to found mission stations at different points, and by their successful labours established a remarkable political system, which subsisted in spite of much opposition till their expulsion in 1767. After their expulsion the Indians who had lived under their supervision and protection in the naturally rich territory still known as Misiones, and elsewhere, fell back into a state of wretched barbarism. During this first period of Spanish rule the governorship of Buenos Ayres was a dependency of the viceroyalty of Lima (Peru); but in 1778 Buenos Ayres was made the seat of a separate viceroyalty, to which were attached not only the provinces of the present Confederation, but also the territories now constituting the republics of Bolivia, Paraguay, and Uruguay. The movement for independence began in this viceroyalty in 1810 after the invasion of Spain by Napoleon, and gradually resulted in the formation of the states now existing. As in the case of Colombia the early years of the Argentine Confederation were much disturbed by contests between the Unitarians, or the party in favour of a single central government, and the Federalists; but the struggle between the two parties ended in 1831 in the triumph of the latter.

The Public Square, Mendoza.

URUGUAY.

Uruguay is a republic lying on the east side of the river of the same name and north of the Rio de la Plata, between the Argentine Confederation and Brazil. Formerly a part of the viceroyalty of Buenos Ayres under the name of Banda Oriental del Uruguay (east side of the Uruguay) or simply Banda Oriental, it was seized by Portugal and attached to Brazil when the Argentine Confederation declared its independence of Spain; but when Brazil likewise declared its independence of Portugal the Argentine Confederation refused to recognize that independence except on the condition of the restoration of Uruguay, and ultimately the present republic was constituted in 1828 under the mediation of Great Britain. The total area of the republic is about equal to the combined area of England, Wales, and the lowlands of Scotland. Details regarding the area and population are shown in the following table:—

Departments.	Area in sq. miles.	Estimated pop., 1877.	Pop. per sq. mile.
Maldonado, ...	5,866	27,863	4·7
Canelones, ...	1,835	40,000	22·
Montevideo, ...	257	110,167	429·
San Jose, ...	4,433	22,500	5·
Colonia, ...	2,196	23,350	10·6
Soriano, ...	3,564	25,600	7·
Paysandú, ...	8,387	36,000	4·3
Salto, ...	9,258	36,000	4·
Tacuarembo, ...	11,910	22,000	2·
Cerro Largo, ...	8,584	33,000	4·
Minas, ...	5,683	44,510	3·8
Florida, ...	4,674	28,040	4·6
Durazno, ...	5,526	39,220	3·7
Total (in round numbers), ...	72,200	440,000	6·

PHYSICAL FEATURES, CLIMATE, PRODUCTIONS, &c.—The whole surface of Uruguay appears to consist of a remarkably level plain traversed by numerous ranges of low hills, known as *cuchillas* (chopping-knives), and seamed in every direction by more or less considerable rivers and their tributaries. In the southern half of the republic the hills, or rather lines of gentle swellings, seldom rise more than 200 or 300 feet above the neighbouring valleys, but in the northern half, which is still very imperfectly known, the ranges of hills would appear from the reports of Indians and others to attain a somewhat greater elevation. The only woodland tracts are on the banks of the rivers, which are all bordered by belts of low trees, principally the tala (*Celtis Tala*), a tree resembling the hawthorn in its general appearance, and often adorned with flowers not its own, sometimes the yellow clusters of the *Cassia corymbosa*, which grows as an independent plant under the protection of the tala, and forces its way through its branches, sometimes scarlet masses belonging to a parasite

called the *Loranthus cuneifolius*. Along with the tala the *Salix Humboldtiana* is often found growing in great abundance, and mingled with these are osier-like sarandis. On the larger streams these wooded belts (called *montes*) attain a width of about a mile or a mile and a half, but on the smaller tributaries they are represented only by a few scattered trees. On the campos or rolling plains away from the rivers only a few trees growing singly or in groups of twos and threes are to be met with, the chief of these being the coronillo (*Scutia buxifolia*), the molle (*Devana dependens*), and the *Oreodaphne acutifolia*, all of which are good timber-trees. The agave is plentiful and is generally used for fences. The almost uniform clothing of the campos is a coarse and bunchy grass, which endures through ordinary summers, but is apt to disappear entirely from extensive areas under long-continued droughts. In spring and autumn numerous flowers enrich the aspect of these grassy plains, two species of oxalis, which flower in the latter season, spreading the surface with vast sheets of yellow, pleasantly interspersed with the purple of the *Oxalis martiana*, while in other places large tracts are turned to a gaudy scarlet by the *Verbena melindres*. The principal interruption to the continuity of the grass on the campos is caused by the presence of a European plant, the cardoon, which has had the success of so many other European invaders belonging to the vegetable kingdom in America, and has spread in these latitudes right across the continent to Chile. In Uruguay alone many square miles (according to Darwin, probably several hundred) are covered by one mass of these prickly plants, impenetrable by man or beast, and allowing nothing else to live within the area occupied by them.

The **climate** of Uruguay is genial and free from extremes both of heat and cold; and both climate and soil are well suited for the growth of wheat, maize, cotton, tobacco, pumpkins, wine, and other products. **Agriculture**, however, is still almost entirely neglected, though now receiving more attention than formerly. The great bulk of the rural population are employed in **pastoral pursuits**. Sheep, cattle, and horses are reared in immense numbers. The face of the country is studded in some places with *corrals* or staked inclosures, and at the chief stations there are large inclosures called *mangueras* capable of holding several thousand cattle. In many cases the cattle are allowed to run almost wild, and all the management they get from the Gauchos or mounted shepherds is effected at their unfenced feeding-grounds with the aid of the lasso and the bolas. When it is desired to tame them the process resorted to is a simple one. A large herd is surrounded at their feeding-ground by a band of mounted Gauchos, who keep circling round them in such a manner as to drive them gradually towards a manguera. About a hundred yards from the entrance to the manguera some tame oxen are kept standing, and when the herd has been brought close enough these are driven in by their attendant, whereupon the whole herd follows them at a thundering pace, and by skilful management all or nearly all of them are secured for the night. Next morning they are let out again carefully guarded, and when this process has been repeated for some days the herd becomes quite tame and allows itself to be driven out in the morning to pasture, and back in the evening to the manguera, by a single man.

Lead, copper, manganese, and a little gold are obtained, and there are fine marbles in the land; but by far the most important articles of export are animals and animal products, one of the most important of which is extract of meat, prepared by a process invented by the German chemist Liebig. The refuse resulting from this treatment of the meat is also a large export, being used as a manure. Nearly the whole of the trade of the republic passes through Montevideo. About one-half of the exports are shipped to the United Kingdom, and the remainder chiefly to France, the United States, and Brazil. Cotton and woollen goods form the chief imports. There are now several railways in the republic, most of which start from Montevideo, but one of which starts from Salto Oriental, at the lowest fall of the Uruguay, and ascends to Santa Rosa near the Brazilian frontier. Except near the towns the roads are mere tracks across the campos. The number of letters conveyed by the post-office is equal to more than two per head of the estimated population. The monetary unit is the *peso* of about the value of 4*s.*, and besides the old Spanish weights and measures those of Brazil are also in use. There is a large forced paper currency, which is constantly increasing.

The Cathedral, Montevideo.

PEOPLE, &c.—The pure Indian tribes of Uruguay are by this time almost completely extirpated. Nearly the whole of the rural population now consists of the mixed race known as Gauchos, who are here as lawless and violent a set of men as are to be found on the face of the earth. In some districts it is stated that nearly one-half of the young Gauchos die by violence. The town population is composed partly of people of Spanish descent including a considerable proportion of Basques, partly of immigrants from Brazil, France, Italy, Sardinia, the Canary Islands, and elsewhere, with their descendants. In all parts of Uruguay the land is said to be rapidly coming into the possession of foreigners, the most dangerous of whom, for the political independence of the republic, are the Brazilians, who are said to own already nearly one-fourth of the surface. A great deal of the laborious work in the state is done by Negroes, who till 1843 were slaves. Of late considerable attention has been given by the government to education, which has already been made free, and which, it

is stated, the government contemplates making compulsory. Subsidies are even allowed by the government to Protestant schools.

GOVERNMENT, &c.—The constitution of Uruguay vests the legislative power in a congress of two houses, a senate consisting of nine members, and a chamber of deputies, consisting of one member for every 3000 inhabitants. While the congress is not sitting a committee of seven members (two senators and five deputies) watches over the administration. The executive power is exercised by a president elected for four years. The Code Napoléon is the basis of the law. The revenue is mainly derived from import and export duties. More than one-half of the annual expenditure is on account of the public debt.

CHIEF TOWNS.—Montevideo, the capital of Uruguay, is the only important town in the republic. It lies on the northern shore of the Rio de la Plata, about 130 miles east-south-east of Buenos Ayres. It is situated on a gentle elevation at the extremity of a small peninsula, and is surrounded by a stone wall, and further defended by a citadel. The cathedral is the only public building deserving of notice. The harbour is the best on the La Plata, although it has only from 14 to 19 feet of water. As the bottom is very soft, vessels receive no damage by grounding. The climate is humid, and the weather in the winter months (June, July, and August) is at times boisterous, and the air keen and piercing. Of the vessels calling at the port those under the British flag are the most numerous, and the next in number Spanish, Italian, German, and French. The population of the town is stated by the *Statesman's Year Book* to have amounted in 1879, according to a rough enumeration, to 105,000, of whom one-third were foreigners. Durazno is the principal town in the interior, and Salto Oriental, Paysandú, and Fray Bentos the chief towns on the Uruguay. Salto Oriental stands at the head of the continuous navigation of the river; Paysandú, the centre of a large trade in animal products including tinned meats, is about 60 miles lower down; and Fray Bentos, the seat of the manufacture of extract of meat, about the same distance still further below. None of them probably has a population exceeding 10,000.

PARAGUAY.

The Republic of Paraguay is the only state in South America which has no sea-board. It lies between Brazil, the Argentine Confederation, and Bolivia, and since the award of the President of the United States determining the territorial dispute between Paraguay and Argentina it comprises, besides the territory between the rivers Paraguay and Paraná, all the territory on the west of the Paraguay between the Pilcomayo and the parallel of 22° S. Almost the whole territory is included between the parallels of 22° and 27° S., and thus lies in about the same latitude as the Transvaal. Its area, about 92,000 square miles, is about three-fourths of that of the Transvaal or a little more than that of

Great Britain with the adjacent islands. Its population was found by an enumeration made in 1876 to amount to 294,000, or about 5 to the square mile on the former area of the republic (57,500 square miles), within which the enumeration was made. The added territory, of which all that is known is that it is a level tract with rich grass plains alternating with forest lands, and covered in the east, where it borders on the Paraguay, with a breadth of from five to twenty miles of palm-trees, is inhabited only by unsettled Indian tribes, apparently low in the scale of civilization.

The older part of the Paraguayan territory, between the Paraguay and the Paraná, is partly traversed and partly bounded on the north and north-east by ranges of hills probably nowhere exceeding 2000 feet in height, and an equally low range of hills traverses the lower portion of this territory from north to south. Elsewhere the surface is irregularly broken by still lower hills, but a large part is occupied by plains, which in the extreme south become marshy depressions, covered in some parts by lakes and dotted in others by a few isolated hills. All the rivers are tributaries of the two chief boundary streams, the Paraguay and Paraná, the former of which is navigable along the whole frontier, and the latter up to within a short distance of the point where it ceases to form the Paraguayan boundary. As in Brazil the low lands bordering on the rivers are subject to periodical inundation. The **climate** is more temperate than might be expected from the latitude and slight elevation of the country. During the coldest months (July and August) the thermometer sometimes falls during the night to the freezing-point, and the average night temperature is from 45° to 50° Fahr., the average day temperature from 59° to 68°. For nine months in the year the temperature is seldom under 77°, usually about 86°, and in the north as high as 98°. The rainfall is distributed as in the Campos of Brazil. **Vegetable products** cover the surface in the richest abundance. Magnificent forests, as varied in their constituents as those of southern Brazil, yield timber and dye-woods, tanner's bark, gums and resins unknown in the European markets, besides other products. But the most important of all the Paraguayan trees is that from which the *yerba mate* or Paraguay tea is derived, a tree of the same genus as the holly (Ilex). Before the arrival of the Spanish its leaves were used by the Indians to make an infusion like tea, and the Jesuit missions which established themselves in Paraguay made it an object of careful cultivation. At the present day the *yerba mate*, which appears in commerce in the form of a coarse green powder mingled with numerous fragments of young twigs, is in use not only in Paraguay, but throughout the Argentine Confederation, Uruguay, Chile, Bolivia, and part of Peru and Brazil; and the best sort is still obtained from Paraguay, from the old plantations of the Jesuit missions, although these are no longer tended in the same manner as formerly. The sale of the product is a government monopoly, and commercially it is by far the most important of the vegetable products of the land. The chief object of agriculture is maize, which is likewise the chief food of the people; but manioc and sweet-potatoes, wheat and rice, are also cultivated. The last-mentioned cereal was introduced last century, and finds an admirable soil and climate for

its growth in the marshy tracts in the south. Pumpkins, melons, and other fruits are also grown, and so too are sugar, cotton, and tobacco, the last of which yields three harvests in the year. The animal kingdom is as richly represented as in the neighbouring parts of Brazil, and the abundance of fish contained in the rivers form the principal food of the unsettled Indians. The domestic animals of Europe, sheep, cattle, and horses, now run wild in large numbers and are also reared in the same manner as in the pampas. The horses are good and are said to have well preserved the form and character of their Andalusian progenitors. Besides mate the chief exports of the republic are tobacco, oranges, hides, tanner's bark, and manioc. There is one short railway from Asuncion to Paraguay, a distance of 45 miles, and the only telegraph line runs alongside this railway. The money, weights, and measures are the same as in Argentina.

The majority of the people of Paraguay are still pure Guarani Indians, who were induced to adopt a settled life and raised to a certain stage in civilization by the Jesuit missions planted in the east and south-east during the seventeenth and eighteenth centuries, but who have retrograded considerably since the expulsion of the Jesuits. They are nevertheless a peaceful people, and the women especially are said to be remarkably industrious and intelligent. The so-called white population is of Spanish descent only on the male side, and forms but a small proportion of the total number. In the north and east, as well as in the territory west of the Paraguay, are unsettled Indians, but these are said to be rapidly dying out. The settled population of Paraguay was terribly reduced by the war obstinately waged against Brazil, Uruguay, and the Argentine Confederation between 1865 and 1870, a war which not only reduced the number of its people but destroyed for the time being the financial prosperity of the republic. Four-fifths of the population are estimated to have perished in consequence of that war, and at the enumeration held on the first of January, 1873, the male population above fifteen was found to number only 28,746 out of a total of 221,000. The population is now, however, rapidly increasing again, the enumeration of 1876 showing an advance of 33 per cent in the three years. The official language of Paraguay is the Spanish, but the language of daily life is the Guarani dialect, which is commonly spoken even by the whites.

After the commencement of the revolutionary agitation in the Viceroyalty of Buenos Ayres, Paraguay was the first section of that viceroyalty that declared itself unequivocally independent of Spain (1811). Shortly after the state fell into the hands of a dictator, and it remained for the most part under one dictator or another till after the termination of the disastrous war already referred to, into which it was recklessly plunged by the last of these wielders of supreme power. In 1870 its present constitution, which vests the executive authority in a president elected for six years and the legislative in a congress of two chambers, and which guarantees religious freedom, was proclaimed; but even since that date the progress of the country has been much hindered by the lawless struggles for power carried on among the leading families. The public revenue is derived from customs duties, state property, and state monopolies. Nearly three-fourths

of the Paraguayan territory is said to belong to the state, but the extent of this property is being reduced, since the revenue is now partly derived from its sale. Till the outbreak of the war in 1865 the finances were in a highly flourishing condition. There was a regular annual surplus of revenue, and no debt internal or external. Now there is a debt of both kinds, the foreign debt, on which no interest has been paid since 1874, contracted in England in 1871 and 1872. In addition to that a relatively enormous debt is due by treaty to Brazil, the Argentine Confederation, and Uruguay as a war indemnity, but the payment of this cannot in the meantime be even contemplated.

The capital of the republic is Asuncion on the Paraguay river, about 650 miles north of Buenos Ayres in a direct line. It was founded in 1535 by a colony of Spaniards, and during the ascendency of the Jesuits was the centre of their administration within the limits of the present republic. In 1869 it was bombarded and plundered by the Brazilians. Before the war it is estimated to have contained not less than 50,000, according to some as many as 100,000 inhabitants. In 1873 it had a population of only 17,890, and since then the number is estimated to have risen to 20,000 or 30,000.

THE FALKLAND ISLANDS.

The name of Falkland Islands properly belongs to a group belonging to Britain between about 51° and 52° 30′ S., about 300 miles off the south-east coast of South America, and having a total area of less than 5000 square miles; but in a wider sense it includes also the uninhabited islands of South Georgia, near 55° S. and about 800 miles distant from the main group. These latter islands also belong to Great Britain, and bring up the total area of the colony to about 6500 square miles.

East and West Falkland, the two large islands of the main group, are both mountainous or at least hilly in the north, and slope away in the south to plains varying from five to fifteen miles in width. The highest elevation, Mount Adam, in West Falkland, is about 2315 feet high. Almost the whole surface is peaty, and the soil is for the most part underlaid at the depth of from 1 to 3 feet by a hard yellow clay, the presence of which is regarded by some as the cause of the entire absence of considerable trees from the islands, a feature in which this group contrasts very strikingly with that of Tierra del Fuego. This clay, it is suggested, is impenetrable to the rootlets of trees, and thus prevents them from obtaining the necessary nourishment. The climate is not severe, the thermometer ranging from 26° to 50° Fahr. in winter, and from 50° to 75° in summer. Ice is stated never to exceed an inch in thickness. High winds, however, prevail, and the want of sufficient sunshine prevents the ripening of cereals. Potatoes, cabbage, celery, and other vegetables, on the other hand, succeed admirably. The only quadrupeds belonging to the group are of European origin,

namely, horses, cattle, and sheep, besides rats and rabbits. Sheep-farming has now become the principal industry, and wool is by far the most important export, those coming after it in the order of importance being hides, tallow, sheep-skins, seal-skins, and seal and penguin oil. Good peat exists everywhere and is generally used for fuel. The islands, which are governed as a crown colony, have been continuously in the possession of Britain since 1833; but it was only in 1851, when the Falkland Islands Company was formed, that a beginning was made with the turning of the resources of the islands to account. The principal settlement is at Stanley in the north-east of East Island. The total population of the colony in 1878 was under 1400, but nearly 600 more than it was in 1871.

AUSTRALASIA AND OCEANIA.

Under this heading are included the large island or insular continental mass of Australia, the other large islands of New Guinea, New Zealand, and Tasmania, and the host of smaller islands in the Pacific Ocean. The aggregate area of these islands is not very far short of the whole area of Europe, though the total population probably amounts to only about one-eightieth of the population of that continent. All the larger islands and the great majority of the small ones lie to the south of the equator, only the Sandwich and Ladrone Islands with a few still smaller ones, the aggregate area of which is about 6650 square miles, lying in the northern hemisphere. Only one or two small islands, however, reach further south than the parallel of 47°, which is about nine degrees nearer the equator than the southernmost point of South America, though nearly thirteen degrees further from it than the southernmost point of Africa. In the following table the areas are all derived from the *Erdbevölkerung* for 1880, the figures in which differ in some cases from the official ones; the populations in the case of the British colonies are the preliminary returns of the census of 1881, and in the other cases estimates derived from the same statistical publication as the areas:—

	Area in sq. miles.	Population.
Australia with the small islands adjacent,.....	2,945,227	2,138,000
Tasmania,.....	26,550	116,000
New Zealand with the surrounding islands,.....	105,405	489,500
New Guinea with the small islands adjacent,.....	311,965	500,000
Oceania,.....	68,027	880,000
Total (in round numbers),.....	3,457,000	4,120,000

AUSTRALIA.

Australia, formerly New Holland, lies to the south-east of Asia, between lat. 10° 39′ and 39° 11′ S., and lon. 113° 5′ and 153° 16′ E., thus extending from about the same latitude as the north of Mozambique in Africa to more than four degrees further south than the southernmost point of that continent, or from about the latitude of the mouth of the San Francisco in Brazil to that of Bahia Blanca in the Argentine Confederation, and corresponding in longitude with that part of Asia which lies between about the meridian of Canton in China and the west coast of the peninsula of Kamtchatka. The extreme length of Australia

from west to east is upwards of 2500 miles, and the extreme breadth from north to south nearly 2000. The length of coast-line is estimated at about 8000 miles, or about one mile of coast for every 350 square miles of surface, the total area being equal to between 32 and 33 times that of Great Britain, or about three-fourths of that of Europe.

PHYSICAL FEATURES.—The interior of Australia, so far as explored, consists to a great extent of arid and sandy plains covered with a sparse vegetation, though diversified here and there with oases of grass. The highest and most extensive mountain system, a more detailed account of which will be given under the separate colonies, rises in the south-east and east, stretching almost continuously at a distance of from about 20 to 100 miles from the coast, from the west of Victoria to Cape York, the northern extremity of Queensland, and attaining its highest elevation, upwards of 7000 feet, on the borders of Victoria and New South Wales. The mountains next in importance are those to the east of Spencer Gulf and Lake Torrens in South Australia. The southern coast from Spencer Gulf to King George's Sound is an unbroken plateau generally faced with sandstone cliffs from 300 to 400 feet high. To the west of King George's Sound low ranges not rising to the rank of mountains run parallel to the west coast of the south-western part of West Australia, and further north the west coast is bordered by a series of more straggling mountain chains, also of no great elevation. The northern coast is low. A considerable part of the coast of West Australia is girt by a line of coral reef, between which and the coast there is often safe anchorage; and off the north-east coast of Queensland the largest coral reef in the world, known as the Great Barrier Reef, stretches for 1200 miles continuously, and while still growing in size through the constant deposits of the coral polyps, already covers an area estimated at 33,000 square miles, or considerably greater than the whole area of Scotland.

RIVERS AND LAKES.—Though lying partly within the latitude of the great fresh-water lakes and great rivers of South Africa, and mainly within the latitude of the region of the great rivers of South America, Australia has no fresh-water lakes of any importance, nor any great full-bodied rivers. Few rivers of any considerable magnitude discharge themselves into the sea at any point of the coast, most of them being either absorbed in the sands or received by lakes with no outlet; and along the south coast from King George's Sound in West Australia to Port Lincoln in South Australia, a distance of 1500 miles, there is not a single water-course to be found. The most important of all Australian rivers is the Murray in the south-east, and though this river has a length including windings of more than 2000 miles, it was not supposed to be navigable till in 1851 Capt. Cadell proved that it was so for vessels of light draught during the rainy season. The navigable portion of it comprises by far the greater part of its course (to beyond Albury), and the navigation lasts for eight months in the year. The navigation of its mouth, the channel by which Lake Alexandrina communicates with Encounter Bay, is extremely difficult. Its tributaries the Darling and Murrumbidgee are likewise navigable for part of the year a certain distance up, the latter for 500 miles. The principal rivers having

no sea outlet are two flowing from the north-east into Lake Eyre, one of which is variously called the Victoria or Barcoo, or Cooper Creek, and the other Western River, Mueller Creek, Diamantina River, or Warburton River, names originally given in both cases to different parts of the course before these parts were known to belong to one stream.

A whole group of **lakes** having no outlet, and accordingly salt, lies in the southern part of South Australia. The principal are Lakes Eyre, Torrens, and Gairdner, all of which vary in size and saltness according to the season. Further north another large salt lake of little depth, named Lake Amadeus, lies between the Tropic of Capricorn and the parallel of 25° S., and there is a group of shallow salt lagoons (Lake Austin, Lake Moore, Lake Barlee, &c.) in the south-west of West Australia. Various others of less magnitude are scattered over the interior.

GEOLOGY AND MINERALS.—The most extensively developed formation in Australia consists of tertiary rocks, the prevailing form of which is a sandstone of late tertiary age (in many parts of unknown age) known as the desert sandstone. In the south-west of the colony of West Australia there is an extensive development of granite, reaching on the west to about 115° 30′ E., stretching north to near the Tropic of Capricorn, and on the south running along the coast till it reaches the desert sandstone at Point Culver. Silurian rocks occupy a large area in South Australia, where they lie on both sides of Spencer Gulf, whence they extend northwards on the east to nearly 29° S., and on the west to the Alberga river, about 26° 30′ S. Further north, near the centre of the island, there are patches of crystalline and metamorphic rocks, which are likewise extensively developed, along with granite, on the north-west opposite Van Diemen's Gulf, Clarence Strait, and Anson Bay. Cretaceous rocks cover a wide area in Queensland and New South Wales from near the south-eastern shore of the Gulf of Carpentaria to about 32° S. The mountainous region in the south-east and east of Australia is mainly composed of volcanic, Silurian, carbonaceous, and carboniferous rocks. Throughout Australia not a single active volcano is known to exist, but in Victoria there are some craters only recently extinct, the aborigines having traditions of eruptions in the times of their grandfathers.

Of the Australian minerals by far the most important is gold, in the production of which Australia at one time considerably surpassed every other part of the world. It was first discovered in abundance in New South Wales in May, 1851, and it has since been found in sufficient quantity to make it of industrial importance in all the colonies except West Australia. In Victoria it was discovered in the same year as in New South Wales; in Queensland the first discoveries of importance were made in 1868; and in South Australia in the Northern Territory in 1880. Tin-mines of great value have been opened on the borders of Queensland and New South Wales; in the same two colonies there are extensive coal-fields, and in the former copper is obtained in large quantity. South Australia is peculiarly rich in the last-mentioned mineral, and contains also silver mines of great importance.

CLIMATE.—In the general account of South America attention was drawn

to the effect that the lofty chain of the Andes on the west side of the continent had in arresting the moisture-bearing winds from the Atlantic and causing them to condense their moisture on the eastern slopes of those mountains, thus supplying the waters which feed the magnificent streams that return eastwards to the Atlantic. In Australia we see the effect on the rainfall of a different distribution of the principal elevations. Lying in a latitude in which, as in the corresponding parts of South America, the prevailing winds, or at least the prevailing moisture-charged winds, are more or less easterly, and having its principal elevations near the south-eastern coasts, Australia receives most of its rainfall on the narrow strip east of these mountains, the consequence of which is that Australia, as has already been stated in its proper place, has no great rivers and no great fresh-water lakes. Its interior is for the most part extremely arid, and so also is a great part of its north-west coast. The parts of Australia which receive the most abundant rainfall are those parts in the north which fall within the domain of the monsoons, those which, accordingly, are swept during one season of the year (the southern winter, April to October) by the south-east trade-wind, but during the rest of the year are exposed to rainy winds blowing from the warm northern seas. But this domain is of no great extent, not descending on the west apparently below 17° S., although on the north-east coast it comes down as far as Brisbane in 27° S. At Cape York, in 11° S., the annual rainfall is about 87 inches, 70 of which fall in the period from December to March; at Brisbane upwards of 7 inches fall on an average in the month of August as against about 2 in the month of February. Even further south the greater proportion of the rainfall takes place in summer, but in the extreme south-east spring rains predominate; and the total amount of the precipitation decreases as we go south. At Sydney, which has an annual rainfall of about 47 inches, 33 per cent of that quantity falls in summer; at Melbourne, with an average annual rainfall of about 29 inches, nearly one-third of the fall is in the three spring months. On the south-west coast, again, the distribution of the rainfall, even as far east as Adelaide, corresponds to what we find in the parts similarly situated in Africa and South America, that is, the west side of Cape Colony and the southern parts of Chile. There the rains are chiefly brought by winter winds blowing from the north-west, and the further west we go the more decidedly do we find this to be the case. At Adelaide nearly one-third and at Perth nearly two-thirds of the rainfall takes place during the three winter months.

Regarding the temperature of Australia all that can be remarked on here is the excessive summer heat of the interior plains, a consequence partly of their low level, partly of their extreme dryness and bareness, partly also of the fact that during the southern summer the sun is about three millions of miles nearer the earth than during the northern one. As one example of these extreme temperatures it may be mentioned that Captain Sturt observed in the northern desert of South Australia a temperature of 134° Fahr. in the shade and 157° in the sun.

VEGETATION.—The Australian flora presents peculiarities which mark it off by itself in a more decided manner than any other botanical region we have yet

dealt with. Many of its most striking features have an unmistakable relation to the general dryness of the climate. The trees and bushes have for the most part a scanty foliage presenting little surface for evaporation, thick leathery leaves well fitted to retain moisture, and these leaves often hanging vertically, a position that causes evaporation to be retarded. The Casuarinæ, which are scattered singly among the Australian woods, are leafless, and so also is the fleshy-stemmed *Exocarpus cupressiformis;* the Australian acacias as they grow old lose their leaves, the place of which is then supplied by expanded leaf-stalks with vertical surfaces known as *phyllodes;* and the Australian conifers (belonging to the genera Callitris, Dacrydium, &c.) have remarkably small leaves, which may almost be called scales. The most numerously represented order among Australian trees is that of the Myrtaceæ, and of this order the most abundant genera are the Eucalyptus or gum-tree, Metrosideros, Callistemon, and Melaleuca, which along with acacias compose half the Australian forests. Most abundant of all is the Eucalyptus, which is found in upwards of 150 species, many of which are of great value and some remarkable for the immense height to which they grow, a height even surpassing that of the giants of Oregon and California. Individual specimens of the *Eucalyptus amygdalina* have been found to measure from 480 to 500 feet, which is higher than the spire of Strassburg Cathedral (466 feet). As timber trees the most valuable members of this genus are the *Eucalyptus rostrata* (or red gum), *E. Leucoxylon* and *E. marginata*, the timber of which is hard and dense, almost indestructible in damp ground or in water salt or fresh, and quite impervious to the *Teredo navalis*. Next in value for its timber is the *Eucalyptus globulus* or blue gum, the tree which has been so largely planted in malarious districts in various parts of the world on account of the purifying effect of its exhalations on the atmosphere, a tree of peculiar value also on account of the extreme rapidity of its growth even on sterile ground. Among other valuable members of the same genus may be mentioned the box (*E. viminalis*), the stringy-bark (*E. gigantea*), and the iron-bark (*E. resinifera*). It may be mentioned as characteristic of the distribution of vegetation in Australia generally, that out of 49 species of this genus growing in West Australia 41 are peculiar to that part of the island, a fact which points to the time at which western was separated from eastern Australia by a sea now mainly filled up by cretaceous deposits. Of the Australian acacias the most beautiful and most useful is that popularly known as the golden wattle (*Acacia dealbata*), which in spring is adorned with rich masses of fragrant yellow blossom. Among trees not belonging to any of the groups already mentioned the most striking perhaps are the grass-trees (Xanthorrhœa and Kingia), which in West Australia, on account of their frequency, have a very marked effect on the physiognomy of the country. Palms, of which there are 24 species, all except the coco-palm peculiar to Australia, are confined to the north and east coasts.

Australian forests are most extensive in the mountainous districts in the east and in the south-west. The general aspect of Australian forests is very different from that presented by the forests of other regions. Dense forests, although not wanting, are comparatively rare, and for the most part the trees are thinly

scattered, as in the Gran Chaco of South America, and a characteristic feature of Australian scenery is the number of dead stems that strew the intervals between the living trees. But what is still more striking in the forests of Australia is the generally dark and gloomy colour of their foliage, which contrasts very strongly with the bright green of the plantations of European trees round the settlements of the colonists; and hardly less striking is the peculiar effect caused by the light shining against the vertical surfaces of the leaves, and the comparative absence of shade due to the same cause, even where the trees are pretty thickly clustered together.

While Myrtaceæ along with acacias make up the greater part of Australian tree vegetation, Australian shrubs mostly belong to the order Proteaceæ. Under the name of "scrub" hosts of densely intertwisted bushes belonging to this order occupy extensive areas, and being very difficult to extirpate are as great an enemy to cultivation as the Chamærops in Algeria. Other large tracts, however, are occupied by herbs or bushes of a more valuable kind, from the fact of their affording excellent fodder. Foremost among those stands the salt-bush (*Atriplex nummularia*), a member of the Chenopodiaceæ. Australia also possesses great numbers of turf-forming grasses, the most notable of which is the kangaroo grass (*Anthistiria australis*), which survives even a tolerably protracted drought. The principal ornamental plants of Australia are everlastings and Liliaceæ.

ZOOLOGY.—The Australian fauna, or rather the fauna of the Australian region, which includes New Guinea and all the Malayan and Pacific islands east of the channel between Bali and Lombok mentioned in the account of the Eastern Archipelago as Wallace's Line, puts this region in even more complete isolation from the rest of the world than its flora does. All the species belonging to this region, almost all the genera, and even most of the families, are peculiar to it; but the great feature of the region is "the almost total absence of all the forms of mammalia which abound in the rest of the world, their place being supplied by a great variety of marsupials" (Wallace's *Island Life*). The Australian region has no monkeys, no Insectivora, no true Carnivora (the dingo or so-called "native dog," which works such ravages among the sheep-flocks of the squatters, being generally regarded as merely a variety of the sheep-dog grown wild), no Edentata, no Solidungula, no pachyderms, and no ruminants. But while all these are absent many of them are represented by different kinds of marsupials. The tree marsupials, Petaurus, Phascolarctos (koala), &c., correspond to the monkeys, the Myrmecobius and Tarsipes to the Insectivora, the Tasmanian Thylacinus and Dasyurus to the Carnivora; while the kangaroos with their hoof-like nails on two toes on the hind feet remind us of the Ungulata, and their peculiar form of stomach reminds us of the Ruminantia in particular. While marsupials, so abundantly represented in the Australian region, are represented by only a single genus (the American Didelphys) outside of that region, the monotremes, consisting of the duck-bills (*Ornithorhynchus paradoxus*) and porcupine ant-eaters (Tachyglossus), and forming the only other division of mammals without a placenta, are quite confined to Australia. Besides these there are only two other orders of terrestrial mammals belonging to the Australian region,

namely, bats and rodents, one of the most characteristic of the latter of which is the Hydromys, an animal with the form and habits of a beaver. Birds, as might be expected from their exceptional means of transition from one region to another, do not form so isolated a group in the Australian region as other divisions of the animal kingdom. Various Asiatic and African types (warblers, thrushes, fly-catchers, shrikes, crows, &c.) are to be met with, but at the same time there is a remarkable absence of other types (vultures, woodpeckers, pheasants, &c.) equally common in these continents. "The most conspicuous and characteristic birds of the Australian region are, the piping crows; the honey-suckers (Meliphagidæ), a family quite peculiar to the region; the lyre-birds; the great terrestrial king-fishers (Dacelo); the great goat-suckers, called more-porks in Australia, and forming the genus Podargus; the wonderful abundance of parrots, including such remarkable forms as the white and the black cockatoos, and the gorgeously coloured brush-tongued lories; the almost equal abundance of fine pigeons more gaily coloured than any others on the globe; the strange brush-turkeys and mound-builders, the only birds that never sit upon their eggs, but allow them to be hatched, reptile-like, by the heat of the sand or of fermenting vegetable matter; and lastly, the emus and cassowaries, in which the wings are far more rudimentary than in the ostriches of Africa and South America" (Wallace's *Island Life*). To this list may be added the crimson pelican with black wings, some species of black ducks, and the black swan. Insects, in consequence of the scantiness of the vegetation, are not so numerous as on the Sunda Islands, but are nevertheless abundantly represented in all the sections of the class, and exhibit many strange and handsome forms. Mosquitoes infest the coast, and sand-flies the interior.

As in America some animals of European origin have multiplied in Australia in a very remarkable manner. Rabbits, for example, have long been a real pest in several of the colonies; and sparrows, which were originally introduced in order to keep down insects and were long under the protection of the laws, have of late also developed into a pest, being often known to destroy whole fields of barley.

It is worthy of remark that both the fauna and flora of Australia, though so isolated at the present time, show decided affinities with the eocene and miocene remains of other regions. In eocene deposits in various parts of Europe there have been found in great plenty, along with remains of vegetable organisms belonging to all warm countries, remains of the characteristic Australian orders of Myrtaceæ and Proteaceæ, those of the former order belonging chiefly to the genera Eucalyptus, Eugenia, Metrosideros, Callistemophyllum (closely allied to Callistemon), as well as to that of Myrtus, the sole genus of that family still represented in the European flora. From these and other discoveries it has been inferred that Australia was probably connected with the Old World from the Jurassic period to the beginning of the tertiary period, but in the course of the latter period became separated, as was stated in the account of the Eastern Archipelago, between Bali and Lombok.

ABORIGINES.—The natives of Australia present some affinities to the

Papuans, the inhabitants of New Guinea and the neighbouring islands, but differ from these in having straight or curly black hair instead of woolly spirally twisted hair, and in speaking languages which, though they vary enormously within very small areas, yet agree in possessing terminational inflections, while the inflections of the Papuan languages are formed by prefixes. The colour of their skin is lighter than that of the Negro; their lips, though thick, are not protuberant, their eyes are sunken, large, and black. In height they are fully equal to the average European, and among the tribes of the north-east this height is often exceeded. The women are not in general so well formed as the men, a fact attributable no doubt to the severe labour and harsh treatment to which they are subjected. In civilization they have never risen above the condition of hunting-tribes, and even among these their place is a low one. The sole article of dress of both sexes among those who have not yet come in contact with Europeans is a cloak of skin or matting fastened with a skewer. They do not tattoo themselves with regular patterns, but their breast or back is usually marked with hideous raised scars, caused by cutting deep gashes in the flesh and filling the gashes with earth or other matter. Their weapons are clubs, spears, axes, and a peculiar weapon called the boomerang, which consists of a curved piece of wood so shaped that it deviates from the direct course, a practised thrower being able to make it strike an object behind him or lying sideways from the direction in which he throws it, while he himself remains all the time in concealment. Cannibalism is practised by them to a limited extent, and it seems to be well established that in some cases the flesh of relatives who have died by violence is eaten as a mark of respect to the dead. Their mental faculties are not generally rated highly, but they appear to have good powers of observation and individual discrimination; and a recent investigator, who devoted three years to collecting facts and making observations among the aborigines in the western district of Victoria, maintains that both as regards their mental endowments and in other respects they have been greatly underestimated by ethnologists. There seems to be no doubt that since the advent of the Europeans they have been rapidly dying out, a consequence to a large extent of the cruelties practised by the

Hut of the Milmendura Tribe of Australian Aborigines (South Australia)

Europeans themselves in spite of the efforts of the regularly appointed protectors of the aborigines. Marauding natives have been shot down without mercy in great numbers, and almost the only employment which the colonists have been able to induce natives to adopt under them is that of mounted policemen whose duty is to prevent or punish the depredations of their kinsmen. A few natives are in some places employed as stock-riders, but for the most part the natives even in the settled parts live apart and refuse to adopt the European civilization. Their total number is estimated at about 80,000.

THE AUSTRALASIAN COLONIES.

Under this head we include, in addition to the colonies of Australia, those of Tasmania and New Zealand, and as all these colonies have much in common, it will both save space and be of greater interest to the reader to give a general account of these colonies under certain sub-headings, before proceeding to notice each of them severally. The following table shows the area and population of each of the colonies, and indicates roughly the ratio which the area bears to that of Great Britain:—

Colonies.	Area in sq. miles.	Ratio to Gt. Britain.	Population, census of 1881.[1]	Increase % ct. since 1871.	No. of females to 100 males.[2]
Victoria,	88,451	1	858,600	17	84[3]
New South Wales,	308,560	$3\frac{4}{10}$	750,800	49	84
Queensland,	668,259	$7\frac{4}{10}$	218,000	81	65[4]
South Australia,	904,133	10	280,000	50	91
West Australia,	975,824	$10\frac{8}{10}$	31,000	24	72
Tasmania,	26,550	$\frac{3}{10}$	116,000	14	89
New Zealand,	105,405	$1\frac{2}{10}$	489,500	91	80
Total,	3,077,182	$34\frac{2}{10}$	2,743,900	$42\frac{1}{2}$	81

[1] Preliminary returns. [2] In 1871. [3] In 1881, 91. [4] In 1881, 71.

PRODUCTS, COMMERCE, AND COMMUNICATIONS.—The principal product of all the colonies is wool, the production of which, as indicated by the quantity exported, is increasing at an astonishingly rapid rate. In 1830 the export amounted to only about 2,000,000 lbs., in 1875 it already exceeded 300,000,000 lbs., and three years later the amount approached 400,000,000 lbs. Next to wool the most important product in the aggregate, though not in each of the colonies, is gold, the total value of the production of which within the first twenty-five years after the discovery of the metal in Australia (1851) exceeded £250,000,000. The annual production of this metal has been for some years on the decline in Victoria, New South Wales, and New Zealand, but is increasing in Queensland, and in South Australia gold has only recently been discovered. (See AUSTRALIA.) The principal crops of the Australasian colonies are the European cereals (including maize) and root-crops. In the northern parts of Australia,

particularly Queensland, sugar and other tropical products are cultivated. Maize, it may here be mentioned, though so largely used as food for man in the United States, is in the Australian colonies given only to cattle, horses, and other live stock. Wine is largely produced in New South Wales, Victoria, and Queensland, and hops form an important crop in Tasmania. In all the colonies green forage crops (among which must be included to some extent maize, sorghum, oats, rye, barley, &c., as well as clover, lucerne, and grasses) cover a large proportion of the area in cultivation. The following table gives an interesting comparative view of some of the leading facts connected with agriculture and stock-raising in the different colonies:—

	Vic.	N. S. W.	Q'sland.	S. A.	W. A.	Tas.	N. Zd.
No. of sheep per head,[1]	10·7	34·5	26·4	25·6	30·8	16·7	30·2
Do. cattle do.[1]	1·3	4·0	11·5	1·0	2·0	1·15	1·3
Do. acres in crop do.[1]	1·6	·9	·6	8·1	1·8	3·2	1·6
Proportion of wheat to whole crop,[1]	·48	·38	·09	·65	·44	·13	·38
Do. oats do.[1]	·09	·04	—	—	·03	·08	·44
Do. maize do.[1]	—	·21	·46	—	—	—	—
No. of bushels of wheat to acre,[2]	13·	14·5	—	8·5	11·	17·	26·
Do. oats do.[2]	19·	19·	—	13·	16·	24·	31·

[1] In 1878. [2] On an average of eight years 1871–78.

Relatively to the production of minerals, food-stuffs, and raw materials the manufactures of the Australian colonies are of very insignificant amount. The only one of these of any importance in relation to its external commerce is the preparation of preserved meats. The experiment of conveying fresh meat in a frozen condition from Australia to London has been tried with success so far as the efficiency of the preserving process is concerned, and if also commercially successful will no doubt lead to a very important development of trade. The commerce is carried on mainly with Britain, whither most of the colonial products are sent, and whence the colonies are chiefly supplied with manufactured goods. Agricultural implements, however, are largely imported from the United States. Besides wool and gold the principal exports are tin, copper, wheat, preserved meat, and tallow. Besides manufactured articles the principal imports into the colonies are sugar and tea. The confining of the energies of the people almost exclusively to the development of the natural resources of the colonies for the supply of older countries while they depend on these countries for manufactured articles has the effect of making the external commerce of all the colonies very great relatively to the population. Thus in recent years the total value of the external commerce of Victoria and New South Wales has been equal to from £35 to £40 per head, while even in the United Kingdom the total value of the foreign commerce is only about £18 per head. Most of the colonial governments have thought it necessary to take special measures for the development of home manufactures. Of the self-governing colonies New South Wales is the only one that follows the free-trade policy of the mother country. Victoria and Tasmania have resorted to the system of protective tariffs, and in Queensland, South Australia, and New Zealand the plan of encouraging certain industries by the conferring of bonuses has been adopted.

The chief routes for mails to the Australian colonies are by the Suez Canal and by San Francisco across America. A new direct line between London and Queensland by Java, following, of course, the former route, was opened in 1881. Steamers and sailing vessels also go by way of the Cape of Good Hope carrying goods and emigrants. All the Australasian colonies are now connected with one another as well as with the Old World by means of the electric telegraph. The line from Melbourne to Williamstown in Victoria was the first laid in the southern hemisphere. The submarine cable from Victoria to Tasmania was laid in 1869, that from Australia to New Zealand in 1876. The transcontinental line from Adelaide to Port Darwin, by means of which the Australian telegraphs are connected with those of the Old World (by Batavia), was completed on the 22nd of October, 1872. The connection between West Australia and the other colonies was established in 1877, when the line from Perth to Adelaide by Eucla was completed. Of all the colonies New Zealand is the one which shows the greatest relative amount of postal correspondence and telegraphic communication. In that colony the number of letters carried by the post-office per head of population has reached 36, and the number of telegrams transmitted is equal to about 3 per head. In Tasmania the number of telegrams transmitted in a recent year was less than 1 per head, and in Queensland the number of letters carried by the post-office for each individual less than 20. The system of money, weights, and measures in use in all the colonies is the same as in the mother country.

PEOPLE, GOVERNMENT, EDUCATION, RELIGION, &c.—In all the Australasian colonies except Tasmania a portion of the inhabitants consists of aborigines. In Tasmania they have died out. The majority of the colonists are in every case of British descent, and of the non-British section of European origin the largest number are Germans. All the eastern colonies of Australia, as well as New Zealand, have received a large number of Chinese immigrants, who are generally regarded with the same dislike here as in North America. The government of West Australia, nevertheless, at the end of 1880 took the step of offering to assist the introduction of this class of immigrants into that colony at the public expense provided a sufficient demand for their labour was intimated. The Chinese find employment chiefly in the gold diggings, but, as in America, a considerable number of them are engaged in market-gardening. Polynesians have been introduced as labourers into northern Queensland, and Malays have settled in the northern parts of South Australia. Both the Chinese and Polynesians consist almost entirely of males. In all the colonies European immigrants who pay their own passage out are welcomed as additions to the strength of the colony; but in Victoria, New South Wales, and South Australia the government has ceased to spend much money in the promotion of immigration, assistance to emigrants to these colonies being now seldom granted except in the case of persons nominated by friends in these colonies. In the other colonies encouragement is given to immigration in various ways, sometimes by the offer of free passages to certain classes of emigrants (especially domestic servants and farm labourers), in some cases by the payment of a portion of the passage money, and in some cases by the offer of free grants of land to those who pay their own passage.

In all the colonies land is to be purchased for settlement at very low rates, but these rates vary in the different colonies and in the former provinces of New Zealand. In all the colonies agricultural land is to be had at as low a rate as £1 an acre on conditions which ensure that the land shall be actually cultivated, and in some colonies the payment may be extended over a period of twenty years at the rate of 1*s.* a year, no charge being made for interest. Pasture land is for the most part held on lease and may be rented in sections, known as "runs" or "stations," on very easy terms; but in many cases the "squatters," as the occupiers of such pastoral sections are here called, are liable to have their holdings encroached on through the exercise of the right granted to purchasers of farming land to select the land they wish to purchase where they please within certain areas. Such purchasers are hence known as "free selectors," and the exercise of this right has in some districts given rise to a good deal of jealousy and ill-feeling between them and the squatters. Annual licenses are granted at various rates to gold-miners, and miners for other minerals, timber-cutters, &c.

All the colonies except West Australia have a constitutional form of government modelled more or less on that of the mother country. The sovereign is represented in each colony by a governor, who is at the head of the executive, and the legislative authority is vested in a parliament of two houses, the upper known as the Legislative Council, and the lower as the House of Assembly or of Representatives. The members of the former in New South Wales, Queensland, and New Zealand are nominated by the governor; but in Victoria, South Australia, and Tasmania they are elected by the people. In South Australia they are elected by the whole body of electors as one constitutency. The lower house in all the colonies is elective, and as a rule no property qualification is necessary to entitle one to the privilege of the franchise. In New Zealand the lower house includes four Maoris elected by the people of their own race. Until 1876 New Zealand was subdivided into provinces, each of which had a legislature of its own; but in that year these provincial legislatures were abolished, and a subdivision of the colony into counties adopted in place of the subdivision by provinces. In West Australia the form of government is what is known as representative, that is, it is one in which not only the governor but also all the other public officers are under the control of the crown. Certain office-holders form an executive council, and there is a legislative council composed partly of official, partly of nominated, and partly of elected members. All the colonies have contracted a considerable debt relatively to the population, but in all except New Zealand (where a considerable part of it was incurred in consequence of the war with the Maoris) the money raised by loans has been expended almost entirely on remunerative public works. At the end of 1878 the debt of Victoria amounted to above £19 per head, that of New South Wales to nearly £17, that of Queensland to £42, that of South Australia to above £21, that of West Australia to about £6, 10*s.*, that of Tasmania to above £16, and that of New Zealand to £52 per head.

The majority of the people in all the colonies are Protestants, and in all except South Australia the Church of England numbers the largest body of

adherents. In South Australia, however, the different sects of Wesleyans outnumber all other religious denominations. Education receives the attention of government everywhere. In Victoria, Queensland, South Australia, and Tasmania elementary education is compulsory, and in West Australia it is at the discretion of local boards to make it so within their own districts. In the first two of the colonies just mentioned all the elementary public schools are free, and in Queensland there are no fees charged even in the higher schools. In Victoria education is altogether secular, and in all the other colonies a conscience clause is enforced in all schools receiving government aid. The system of giving grants to denominational schools as well as maintaining schools directly under the management of a central board is followed in New South Wales, Queensland, and South Australia. By the New Zealand Education Act passed in 1877 the colony is divided for educational purposes into twelve districts, each with a board of its own, under a colonial minister of education. The cost of building and maintaining schools is defrayed out of funds provided by parliament. The committee having the management of each school have the right of deciding whether education shall be compulsory within their district or not. The principal universities in the Australasian colonies are Sydney University, founded in 1851; Melbourne University, founded in 1853; and the University of New Zealand; the last being only an examining body incorporated by royal charter in 1876, and having colleges at Auckland, Wellington, Nelson, Christchurch, and Dunedin affiliated to it.

VICTORIA.

The colony of Victoria, the south-easternmost of the colonies of Australia, was formed by the separation of the province of Port Phillip from the colony of New South Wales on the 1st of July, 1850. It is bounded on the west by the meridian of 141° E., by which it is separated from South Australia; and on the north and north-east by New South Wales, from which it is separated by the Murray River from the meridian of 141° E. to the source of that river in Mount Forest, and thence by a line stretching to Cape Howe.

The surface is for the most part mountainous, and the scenery picturesque. The only extensive plains lie in the north-west, and only there can one find areas within the limits of the colony where the mountains are altogether out of sight. The mountains begin near the western boundary with the range of the Grampians, which run for fifty miles from north to south and culminate in Mount William (about 5500 feet). Immediately to the east of this range a chain known as the Dividing Range, with peaks from 2000 to 3400 feet high, stretches from east to west through two-thirds of the length of the colony; and a continuation of the same chain, with several summits above 5000 feet in height, and with a breadth at places of 100 miles, trends north-eastwards and passes into New South Wales. The only navigable rivers are the Murray, which is navigable for steamers during the season as far up as Albury in New South Wales; the Yarra Yarra, at the mouth of which Melbourne stands; and the principal streams in the south-east.

Most of the chief lakes of Victoria are salt. The lake of Corangamite, about fifty miles west of Port Phillip Bay, has an area of 75 square miles, and is extremely saline in consequence of the accumulation of salt in solution derived by its feeders from the neighbouring basaltic rock. In the summer the lake sinks below its winter level, leaving on its banks large quantities of native salt in crystals, the gathering of which affords remunerative employment to those residing in the district. Of the smaller lakes a considerable number occupy the craters of extinct volcanoes. On the south-eastern coast there are several large lagoons separated from the sea only by sand-bars, which are periodically opened by the settlers to set free the accumulated waters and to admit vessels to the interior. East of Port Phillip Bay an extensive swamp, called Kooweerup, stretches for upwards of forty miles from west to east, with an average breadth of about seven miles.

The **climate** of Victoria is very healthy, and on the whole delightful, offering all the year round few impediments to out-door labour and recreation. The annual death-rate rarely exceeds 20 per thousand, and in 1871 was less than 13½ per thousand; but it must be borne in mind in comparing these figures with those of European countries that any country which, like Victoria, contains a large immigrant population, contains a relatively smaller proportion of its population at the period of life when the mortality is heaviest, namely in infancy. Frost is rare. Except in the Australian Alps the thermometer seldom falls below 30° Fahr., but, as in other parts of Australia, extremes are not uncommon at the other end of the scale. In a violent hot wind the thermometer has been known to rise to 115° in the shade, and in most years it reaches 110°. The mean for the whole year at Melbourne is 58°. The distribution of the rainfall is greatly affected by the Dividing Range of mountains. At Melbourne the average annual rainfall is 25 inches, and at other places on the south side of the mountains the amount is about as great, though generally greater in the west than in the east. In the high-lying region in the north-east known as the Ovens district the annual rainfall is considerably greater, but in the plains of the Wimmera district beyond the mountains in the north-west the rainfall rarely exceeds 14 inches in the year, and as the evaporation is there enormous on account of the sandy nature of the soil, that region is extremely dry.

Though the rainfall is thus seen to be nowhere very great it is sufficient in the mountains to give life to extensive **forests** of characteristic Australian trees, including giant eucalyptuses and a variety of acacias, and in the lower tracts on the south to nourish rich pasture grasses, which offered the first attraction to settlers in this part of Australia. In the dry plains of the north-west almost the only useful vegetable product is the salt-bush, which affords food for immense herds of sheep. Throughout the colony, sheep, which were first landed at Gellibrand's Point, now Williamstown near Melbourne, and at Point Henry near Geelong, form the most important **live-stock**, though of late the increase in the number of horses and cattle has been more steady than that in sheep. From 41,332 in 1836 the number of sheep within the limits of the present colony of Victoria increased to nearly 12,000,000 in 1875, but has since declined. In the latter year the number of cattle for the first time exceeded a million, and

two years later the number of horses first rose to upwards of 200,000. Horses are now so cheap that many are boiled down merely for tallow. Besides the animals already mentioned pigs also are numerous, and llamas and alpacas have been introduced. More attention is said to be paid to the breeding of all kinds of stock in Victoria than in any of the other Australian colonies, and in consequence partly of this, and partly of the superior pasture and climate, the Victorian sheep excel all the others in the proportion of their yield of wool. In the dry Wimmera district a particular breed of sheep is found to be best adapted to the locality, and to furnish a better wool than any other reared there.

Till after the discovery of gold in the colony in 1851 and the great influx of gold-diggers that followed thereupon the squatters constituted by far the most important section of the population of Victoria, and the land-laws were framed solely with a view to their interests. The consequence was that the cultivation of the ground was almost entirely neglected, and the population was fed mainly by imported food. But after the sudden increase of the population due to the cause indicated food rose to such a price that a change of system became imperative, and greater encouragement had to be given to **agriculture**, which is now an industry of great and rapidly increasing importance in the colony. While in 1854 there was only about one acre under the plough for every six inhabitants, the number of acres under crops has now exceeded for many years the number of the population. The agricultural and orchard products of Victoria include all the principal products of the kind belonging to England, and, in addition, maize, sorghum, tobacco, hemp, flax, chicory, sugar-beet, olives, oranges, guavas, and other fruits, besides the vine and the mulberry. Vines succeed best in the dry regions beyond the mountains. The wine produced from them is of excellent quality. The rearing of silk-worms is making progress. Japanese eggs have been introduced, and have thriven admirably. In general great advances have been made in the methods of agriculture pursued in the colony. Machinery is now extensively employed, and in the drier parts irrigation has been resorted to with great success. By this means much has been done to advance agriculture by Chinese immigrants, who have thereby converted barren wastes into fertile lands producing far better crops than those raised by English farmers near them on the best soil. Their example is now followed, however, by Victorian and European farmers, and the colonial government is now so impressed with the advantages of irrigation that it has constructed many tanks or reservoirs to hold stores of water, which, though primarily intended for use in gold-washing, is also meant to be made available for agriculture.

The **mining** industry, though no longer of such importance either absolutely or relatively as it once was, still employs an immense amount of capital and labour in Victoria. There is indeed only one mineral of any great consequence, but that one is gold. As already mentioned that metal was first discovered in 1851, and by the close of that year Victoria held the first place among the Australian colonies on account of its mineral wealth and prospects. About one-third of the colony is stated to be auriferous. At present the gold is chiefly obtained from quartz-reefs, especially at Sandhurst (formerly Bendigo), and

Ararat. The reefs of quartz run in a nearly north and south direction through rocks belonging to the lower Silurian series, and are most frequently found where the rocks are in contiguity with others of igneous origin. Sometimes they are as much as 150 feet wide, and several of them have been wrought to a depth of more than 2000 feet below the surface. Frequently the vein of gold, after becoming gradually thinner as the miner penetrates into the reef, and then disappearing altogether, is discovered again at a still greater depth richer than ever. In many cases the gold is not found pure but combined with other minerals, as in *mundic* or iron pyrites, and in arsenical pyrites. Besides quartz, granite, slates, and sandstones have been made to yield gold by crushing. But though rock-crushing for gold is now the most important mining industry in Victoria the early settlers depended entirely on the deposits found in alluvial matter, from which it was separated by washing. At first it was found in the sands of rivers and in the flats near their beds, but by-and-by it was discovered to exist more plentifully in what are called *leads*, that is, the beds of old rivers now filled up by alluvial matter. In many places these leads are deeply buried beneath beds of lava or basalt, and at Ballarat (the principal centre of the alluvial gold diggings) no fewer than four distinct layers of such igneous rocks have had to be pierced in some places to reach the gold-bearing leads or *gutters*, as they are also called. Up to the end of 1880 the approximate area of ground over which gold-mining operations had been actually extended was 1235 square miles, and the number of quartz-reefs proved to be gold-yielding was 3630. Of other minerals than gold the most important is tin, which is found in considerable

quantity in some of the streams in the form of the black oxide. Antimony, bismuth, manganese, and cobalt are also obtained, and coal exists, though no rich seam has yet been found, and the prospects of this mineral becoming an important product are not very promising. It crops out on the coast to the east of Cape Otway, and at various points on Port Western, but the want of harbours is a serious obstacle to its working, while the difficulty of access is an equally great obstacle in the way of its working at such points as it has been found at in the interior.

From twenty to thirty per cent of the **exports** of this colony are of external origin, coming chiefly from New South Wales, which accounts for the fact that the staple exports of Victoria take an important place also among the imports of the colony, these being imported only for re-export.

The deficiency of natural water-ways in the colony has been made good by the construction of an extensive **railway system** chiefly at the cost of the government, as well as by the construction of roads, on which stage-coaches run to nearly all parts of the colony. The railways all radiate from Melbourne, and in 1881 there was in all about one mile of railway open for every 93 square miles of surface, besides a large mileage in course of construction or preparation.

The **capital** of Victoria is Melbourne on the Yarra Yarra a short distance above its mouth in Port Phillip Bay. The river on which it stands is navigable to the heart of the town for small steamers and other vessels of moderate size, but the navigation is there interrupted by falls. Large vessels come only to Sandridge, which is thus the port of Melbourne, from which it is about two and a half miles distant. The city of Melbourne is regularly and handsomely built. The principal streets run at right angles to one another and are all 99 feet in width. A beginning has been made in adorning them with trees, which in process of time will without doubt contribute greatly to the comfort of the inhabitants as well as to the embellishment of the town. The public buildings include all those usually belonging to a capital city. There are several public parks, among which may be reckoned the botanical gardens, containing a valuable collection of choice plants and trees. In the rapidity of its growth Melbourne is the rival of the American cities of Chicago and St. Louis. In 1835 its site was uninhabited, and the present city originated in a station formed there by some colonists in that year. In 1871 the population of the city was 191,000, and in 1877 it was estimated to have increased to 245,000. The second city in Victoria is Ballarat (47,000), which lies in the centre of one of the richest gold-bearing districts in the world, about 65 miles north by west of Melbourne. The gold is found here both in alluvial diggings and in quartz-reefs, but the yield of gold is declining. Sandhurst (27,000), formerly Bendigo, about 60 miles north by east of Ballarat, is the centre of the principal gold-bearing quartz region of Victoria, and is increasing in prosperity as fast as Ballarat is declining. Geelong (12,000), on a western inlet off Port Phillip Bay, 45 miles south-west of Melbourne, is the focus of a rich agricultural district covered with corn-fields, vineyards, and orchards.

NEW SOUTH WALES.

New South Wales, the oldest of the Australian colonies, originated in the settlement of British convicts at Botany Bay in 1788. Having been at first considered as embracing the whole of the eastern side of Australia it was reduced to its present limits by the severance first of the colony of Victoria on the south and then that of Queensland on the north. Its western boundary is the meridian of 141° E., and its northern the parallel of 29° S. eastwards as far as the Darling or Barwan River, and from that point the river just mentioned, the Dumaresq River, and a small range of mountains which reaches the sea-coast about 28° S.

The **surface** of New South Wales, like that of Victoria, consists partly of highlands and partly of plains; but the plains have a much greater relative extent in the former than in the latter. The highest part of the mountain series, which here also is known by the appropriate name of the Dividing Range, is the mountain chain called the Muniong Alps, a continuation of the Australian Alps, which enter New South Wales from Victoria. These mountains here attain their culminating point in Mount Kosciusko, 7300 feet. Several of their peaks rise above the limit of perpetual snow, and in the higher valleys a few glaciers are to be seen close above luxuriant tree ferns. Some of the other chains composing the Range have summits of from 5000 to 7000 feet in height, but the most celebrated of all the chains, that of the Blue Mountains behind Sydney, is by no means among the highest, rising in its most elevated peaks to little above 4000 feet, and owes its celebrity partly to the fact that it overlooks what were the earliest and what are still the most populous settlements of the colony, and partly to the wild and rugged picturesqueness of its scenery. The plains of the interior of New South Wales have a mean length and breadth of about 400 miles, and thus have a total area not very much less than double that of Great Britain. Naturally all the important rivers of the colony are to be found in this part of its area, to which accordingly the name of Riverina is popularly applied —especially to the southern part of it where the rivers are most numerous.

The chief difference between the **climate** of New South Wales and that of Victoria consists in its proportionately higher temperature, due to the fact of its being nearer the equator. The mean temperature of the year at Sydney is 62½° Fahr., at Grafton, about 20 miles inland near the north of the colony, 68°, at Bathurst, at the height of 2200 feet above sea-level, 57°, or only about one degree less than at Melbourne. On an average of years the annual rainfall has been found to vary from about 38 to upwards of 63 inches at different stations on the maritime side of the Dividing Range, and from about 26 to 31 inches on the inland side of the mountains. In the latter area periods of protracted drought often occur. The colony is everywhere healthy, and in the hill settlements the annual mortality has been as low as 9 per thousand—a lower rate probably than is to be found anywhere else in the world. The greatest inconvenience of the climate of New South Wales is the violent hot wind known as the "southerly buster," which occasionally blows during the summer, and fills

the air with clouds of choking dust, which finds its way everywhere, even into the remotest part of the interior of the houses.

The **vegetation** of New South Wales is very similar to that of Victoria, but assumes a more and more decidedly tropical character as it approaches the frontier of Queensland. The grasses and other fodder plants of the colony support a greater number of every kind of live-stock, and above all sheep, than in any other of the Australian colonies, including New Zealand. In the fifteen years from 1865 to 1879 the number of sheep in the colony nearly trebled itself. The quality of the wool is excellent, especially that produced in the northern counties known as the New England district, and that produced in the Mudgee district about fifty miles north of Bathurst, and in some other favoured localities. Agriculture, on the other hand, is relatively backward in the colony, maize being the only important crop in which it greatly exceeds the production of all the others. Wheat does not cover one-third of the area that it does in Victoria or one-fifth of that occupied by it in South Australia. In addition to the crops grown in Victoria sugar-cane and arrowroot may be mentioned among those of New South Wales. The former is a crop of rapidly increasing importance, and the latter is found to be a very suitable crop for the small farmer. The vine covers a smaller extent of ground in New South Wales than in Victoria, but so much better is the climate of the former adapted for its cultivation that the quantity of wine produced there is about one-half greater than in the latter colony. Tobacco also is very well adapted to the climate of New South Wales, and though principally cultivated hitherto for sheep-wash has now begun to be grown for manufacture. Several varieties of mulberry thrive exceedingly well, and silk is said to be likely to become an export soon. Bananas, loquats, pine-apples, and other tropical and sub-tropical fruits are grown for exportation.

The **mineral wealth** of New South Wales is more varied than that of Victoria, and the total annual produce of the mines relatively even more important than in the latter colony. As in Victoria gold still holds the first place among the mineral treasures of the land, but it is not as in that colony without a rival, since both coal and tin mines already yield exports of considerable value. The first discovery of gold in the colony was made in 1823, but the first gold-field (near Bathurst) was made known to the world in 1851, the same year as that in which the gold-fields of Victoria were discovered. There are now eighty gold-fields in the colony, extending over a total area of 14,000 square miles, in the eight districts of Bathurst, Turon, Mudgee, Lachlan, Southern, Tumut, Peel, and New England. The discovery of a new gold-field in the Grey Ranges in the extreme north-west of the colony has recently been reported, and this discovery is interesting as the first instance in which mineral treasures have been discovered in Australia except within a short distance from the coast. The coal-fields are estimated to extend over an area of about 10,000,000 acres or upwards of 15,500 square miles. The principal field lies about eighty miles north of Sydney round the town of Newcastle, which owes its name to this circumstance. Other fields exist at Wollongong about forty miles south of Sydney, at Berrima, Maitland, &c. The coal-formation of New South Wales also yields large supplies of mineral oil.

Kerosene is obtained from shales at Illawarra south of Wollongong, and another oil, known as bog-butter, is derived from a carbonaceous rock at Hartley and elsewhere. Tin is produced in great quantity by blasting the primary rocks round Tenterfield and Inverell in the New England district near the Queensland border, and is likewise obtained in smaller amount from rivers. Silver, lead, copper, and iron are also metals of more or less importance to the colony.

The principal **railways** of New South Wales are those known as the Northern, Western, and Southern, all constructed by the state. The Northern line proceeds from Newcastle through the coal district and is intended ultimately

to be continued to the tin-mining centre of Tenterfield. The other two lines both start from Sydney, the Western proceeding to Bathurst and the gold-fields in that neighbourhood, and the Southern to Albury, where it joins the Victorian railway from Melbourne. The construction of this latter line has already diverted to Sydney a great deal of the trade of the Riverina which formerly went through Victoria to Melbourne; and with the view of getting still more of the trade of that region diverted to the former port the parliament of New South Wales has sanctioned the construction of a line from Junee on the Sydney and Melbourne line to Hay, on the Murrumbidgee, in about 144° 50′ E. A private company has constructed a railway in the south from Deniliquin to Echuca on the Victorian side of the Murray River.

Like Victoria, New South Wales has one and only one large town, namely Sydney, the **capital**. It is the oldest town in Australia, having been founded

on the 26th of January, 1788, a few days after the arrival of the first convict ships. It was named after Viscount Sydney, the colonial secretary of that date, as its harbour was named Port Jackson after Sir George Jackson, who was secretary to the admiralty at the same time. The town stands partly on a small promontory running into Port Jackson, partly in a narrow valley, and viewed either from the water or from the adjoining heights on the mainland presents a very beautiful appearance. The parks are numerous, one of them 490 acres in extent; and there is a fine botanic garden, covering 38 acres. The population of the town in 1871 was 76,000, or including suburbs 136,000. In 1875 the estimated population of the town and suburbs was 165,000, and the population of the town and surrounding district then made up about 27 per cent of the whole population of the colony. The harbour of Port Jackson, regarding which Anthony Trollope writes that he has seen "nothing like it in the way of land-locked sea scenery, nothing second to it," though only about 15 miles long and at most about 3 miles broad and covering an area of only 9 square miles, yet has a coast-line of 54 miles round its numerous bays and creeks. In the neighbourhood of Sydney it is provided with admirable wharfs and docks, and there is a government dock a few miles to the west capable of admitting the largest vessels for repair. The shipping trade of the port is the largest of all the Australian ports. Among other articles exported are the produce of the southern whale-fishery. No other town in New South Wales appears to have a population above 10,000. Newcastle, the centre of the coal-trade of the colony, situated on the Hunter about 75 miles north of Sydney, has a population, including seamen, of about that number. Its annual export of coal amounts to about 1,000,000 tons. Parramatta (6000) is charmingly situated amidst orange groves on what is called the Parramatta River, but what is in reality an elongation of Port Jackson. It is the second oldest town in the colony, dating from the same year as Sydney. Bathurst (5000–6000), 122 miles west of Sydney, lies in the midst of a district in which all the three great industries of the colony, stock-rearing, agriculture, and gold-mining, are carried on, and is a town of rapidly increasing importance.

QUEENSLAND.

Queensland, originally the Moreton Bay district of New South Wales, was first settled by a party of convicts despatched to the Brisbane River by the governor of that colony, Sir Thomas Brisbane, in 1825; was proclaimed a free settlement in 1842, when the convicts were withdrawn; and finally in 1859 was made a separate colony under its present name. It occupies the whole of the north-east of Australia beyond South Australia and New South Wales, and has an extreme breadth of about 925 miles, or about three and a half times the maximum breadth of England and Wales measured on a parallel of latitude, and an extreme length of about 1250 miles, equal to nearly three times the direct distance between Land's End and Berwick. The sea-board is 2550 miles, which gives about one mile of coast for every 260 square miles of surface. To Queens-

land belong also all the islands off the coasts, including, by an act of the colonial legislature passed in 1879, all those in Torres Straits, even to the Talbot Islands at the mouth of the Baxter River, New Guinea. A government station has been established on Thursday Island, one of the group lying immediately to the north-west of Cape York.

The coast range of **mountains** which traverses Victoria and New South Wales runs northwards through this colony also, but with few peaks rising to above 3000 feet in height. Towards the east the chains composing this mountain system generally sink abruptly down to the coast or to the maritime strip of land, but towards the west they spread out into a broad table-land or congeries of table-lands intersected by various isolated mountain chains, and bounded on the west by a series of heights which descend with a steep slope to the interior plains. Few of the rivers are of navigable importance. On the Pacific side the principal are the Brisbane in the south, the Fitzroy, which enters the sea about the tropic of Capricorn, and the Burdekin about four degrees further north. Many of the rivers of the north and east are liable to overflow their banks. The rivers flowing south and west either join the Darling or belong entirely to internal drainage systems. There are no lakes of any size.

Running northwards for thirteen degrees within the torrid zone Queensland necessarily has in some parts a very warm **climate**; but as there is no record of temperature except for stations in the immediate neighbourhood of Moreton Bay, no definite information can be given regarding the degree of heat that prevails on an average at other places. At Brisbane the mean temperature of the year is 69° Fahr. On the table-lands further west it must be considerably less, though the thermometer often stands higher there than it does on the sultry tropical plains. The heat of Queensland too is felt all the more on account of the moisture, since the rains of this region, unlike those of the other colonies, occur during the Australian summer. But by way of compensation Queensland is seldom afflicted by the violent hot wind which is the scourge of the other colonies. The amount of the rainfall in Queensland is greater than anywhere else in Australia, but varies greatly according to the locality. Some points of the coast, the whole of which except a small part on the Gulf of Carpentaria comes within the range of the monsoons, have as much as 100 inches of rain in the year, while the interior plains beyond their range have sometimes less than 10 inches. Characteristic of the Queensland coast are the deluges of rain that fall within very short periods. A fall of six inches within twenty-four hours is often observed during the rainy season (especially in the month of February), and at Port Mackay as much as 16 inches has been observed within that time. In point of salubrity Queensland, when judged by its death-rate, which amounts on an average of thirty years to 18·21 per thousand, compares rather unfavourably with the other Australian colonies, though that death-rate is still considerably below that of European countries. The northern parts are certainly the least adapted to the European constitution, although even these are held to be by no means unfit for European settlement. In certain parts ague and intermittent fever are endemic.

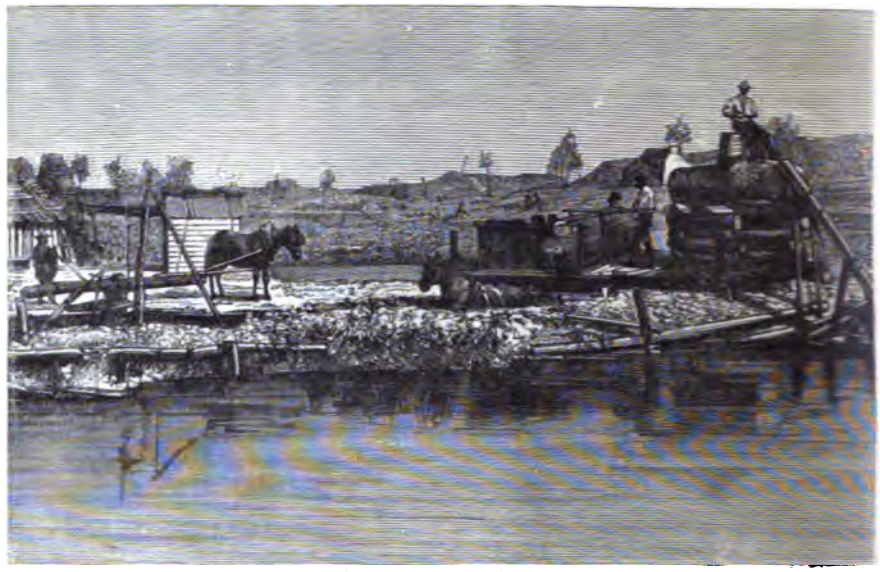
In respect of the total proportion of land under crop, Queensland, as appears from the statistical table given in the general account of the Australasian colonies, does not yet take a high place among the Australian colonies, but in respect of the variety of its **agricultural products** it is unsurpassed. As in New South Wales maize is the chief cereal grown, but the soil and climate have also been proved to be well fitted for nearly all kinds of tropical products, including sugar, cotton, tobacco, coffee, arrow-root, yams, tapioca, ground-nuts, indigo, sago, cacao, and a great variety of fruits. Of all these products sugar is the one that is now attracting most attention and rewarding most richly the

Village on Darling Downs.

labour of the cultivator. It is found to be well adapted for almost the whole of the eastern coast, at least as far north as the Endeavour River (about 15° S.), but the principal plantations are round Port Mackay on the Pioneer River, about 21° S. In all the northern plantations the labourers are South Sea Islanders, here known as *kanakas* or *karnackies*. Cotton held about ten years ago a high place among the agricultural products of Queensland, but since the decline in prices of raw cotton it has almost ceased to be cultivated. Sweet-potatoes and arrow-root are largely grown for home consumption, and arnotto dye, ginger, opium, dates, vanilla, and tea are all, it is said, destined to be among the exports of the colony. The vine does not succeed so well as in New South Wales on account of the heavy summer rains. The region best adapted for products of a temperate clime (such as wheat) is the rich table-land known as the Darling Downs behind Brisbane, the discovery of which led to the first great

influx of immigrants about 1842. The **forests** of Queensland, among the natives of which are more than half the native trees of Australia, are rich in useful timber, which is now being more and more turned to account, unfortunately with little regard for the future. The most valuable timber-trees are cedars and firs.

But it is as a **stock-rearing** country that Queensland, like the other Australian colonies, is as yet of most importance in the way of contributing to the commercial products of the world, and stock-rearing, as the table already referred to shows, is relatively to agriculture of even more importance here



Small Mineral Workings.

than in any of the other colonies. Cattle in particular are remarkably abundant, their number being nearly three times as great relatively to population as in New South Wales, which ranks next to Queensland in this respect. This colony can still afford enormous areas in which the squatter may remain long undisturbed by the free selector. Already the runs are to be found far in the interior, along the banks of the Diamantina (or Cooper) and Victoria (or Barcoo) Rivers, where the salt-bush and grasses are so rich and abundant that, it is said, the very working bullocks of the region become fat. The Queensland sheep, however, do not yield so heavy a fleece as those of the more temperate colonies.

Mining too is an industry of the first rank in Queensland, and here also it is gold that still holds the highest place under this head. The gold-fields cover an aggregate area of 7000 square miles, and are found in the north, middle, and south of the colony. The northern fields are the most important and the most numerous, being scattered over the York Peninsula and the region immediately adjoining to the south-west. Those of the Charters Towers district, west

of the Burdekin River, produce annually nearly half as much as is produced by all the other gold-fields put together. The central gold-mines are near Rockhampton, on the Fitzroy, and the southern at Gympie and near Warwick. Coal is estimated to occupy an area of 25,000 square miles, an area equal to nearly half that of England. Kerosene shale also exists at one or two places. One-third of the area of the great northern tin-field of New South Wales extends into Queensland, and in this area tin is produced to a large extent. The ore is a peroxide found in red granite. The same mineral is found in the Burdekin and some other northern rivers. Copper is obtained in various places, and iron has been discovered in almost every part of the colony, but this latter metal is not yet worked. Pearls and trepang are products of the Queensland seas in the north and north-east.

Rapid progress is being made with **railway** construction. In the south there is one line 330 miles long from Brisbane to Roma, the centre of a rich pastoral district, with a branch to the south by means of which the products of the southern tin-mines are conveyed to the capital. In the north there is a line proceeding westwards from Rockhampton, the goal of which is the gold-fields of Clermont. The construction of about a thousand miles of additional railway is contemplated in order to open up the north. The principal project included in this scheme is that of a line from Brisbane to the Gulf of Carpentaria, the preliminary surveys for which have already been made.

The settled **population** of Queensland is composed of whites, Chinese, and Polynesians. The Chinese, who numbered in 1878 about 14,500, are almost wholly engaged in mining, gardening, and fishing. Here as elsewhere there are scarcely any women among this class of immigrants. The Polynesians, who have already been mentioned as the labourers on the sugar-plantations, also consist almost entirely of males. In 1878 they were estimated at about 8000. Regarding this section of the population there is considerable diversity of opinion. By the Queenslanders of the south, where they are not wanted, their introduction is looked upon with no favour. Their employment is declared to be a species of slavery, and various evils are said to be associated with the system. Formerly it is admitted that kidnapping was resorted to in order to procure a supply of this kind of labour, but the government regulations are now adequate to prevent this practice. The men come voluntarily for a stipulated period of service, and at the end of that period the employers must return them to their native islands should the men demand it. But "they often prefer," says a correspondent of the *Times*, "to remain in the service; very commonly return to the colony after visiting their homes; and in many instances bring relatives and friends with them also to take service with the European settlers." The same authority speaks of them as "industrious and sober, and when well treated by considerate masters easily manageable;" and Dr. Emil Jung, formerly inspector of schools in South Australia, describes them as well-fed, cheerful, and active in their work. On the other hand, Sir Charles Dilke speaks of their employment as having "the usual effect of degrading field-work in the eyes of European settlers, and of forcing on the country a form of society of the aristocratic type,"

and the missionaries consider the returned labourer as by no means morally improved by the change.

At the census of 1871 there were only three **towns** in Queensland with a population of 5000 or upwards. The principal town in every respect is Brisbane, the capital, which then had a population of 19,000, and which is estimated to have since increased so much as to contain 30,000 inhabitants. It lies about 500 miles north of Sydney, and about 25 miles from the mouth of the River Brisbane, at the head of the navigation of that river for sea-going vessels, and consists of two portions on different sides of the river, connected by an iron lattice-girder bridge with a double-armed swing-span of 170 feet in the middle. At this capital also there is an interesting botanic garden. Ipswich (in 1871, 5000), on the same river 25 miles still higher up, lies at the head of steamboat navigation. Rockhampton (in 1871, 5500), 420 miles north-west of Brisbane, is situated on the Fitzroy about 45 miles from its mouth, and is the port of shipment for a large extent of country producing wool, gold, and copper.

SOUTH AUSTRALIA.

The colony misnamed South Australia owes that name to the fact that at the time of its foundation there was no settlement so far south in Australia, while this colony was itself expected ultimately to extend to the territory now occupied by Victoria. The original settlement of South Australian territory was due to a private company chartered in 1834, but the colony of South Australia was not formed till 1841, after the attempts of the private company to colonize and administer the territory had failed. In 1856 it was granted the right of self-government. The original area of the colony was about 300,000 square miles, the parallel of 26° S. being at first fixed as its northern limit, and the meridian of 132° E. its western limit, while its eastern limit was 141°, as it still remains in the south. In 1861, however, its western limit was extended to 129° E., and in 1863 the Northern Territory, reaching to the sea between 129° E. and 138° E., was added, by which enlargements the area of the colony was trebled. South Australia, it is worthy of remark, is the only one of the Australian colonies that never received convicts.

The **elevations** of South Australia are much less considerable both in relative extent and in height than those of any of the eastern colonies. The principal series of mountains is that which extends northwards from Cape Jervis to the region east of Lake Torrens. Several peaks in that series attain the height of about 3000 feet, but none rise much higher. The region farther north consists of a series of stony table-lands, generally poorly clad with vegetation, with alluvial plains between on which vegetation is most luxuriant and the best pasture is found; and beyond the table-land region there extends as far as Cooper's Creek a region occupied by low ridges of dazzling white sandhills stretching away for hundreds of miles to the north or north by west, a region belonging to what has been called the Central Desert, but which is in fact far from desert except during long periods of drought. The areas between the sand-

hills are periodically inundated by the overflowing of the rivers that wind through them and which become swollen in consequence of heavy rains within the tropics. The greater part of the rest of the surface, so far as it is known, is flat and uninteresting, to a large extent desert, but even in the most inland parts of the colony much good country was discovered by the parties engaged in laying the transcontinental line of telegraph. In the Northern Territory in Arnhem Land there is an extensive table-land from 2000 to 4000 feet in height. Except in the Northern Territory the Murray River, which has the lower part of its course in South Australia, is the only river of importance which permanently reaches the sea. Though navigable throughout its course in this colony and a long way higher up, it unfortunately has its mouth encumbered with a shifting bar which makes the navigation inwards and outwards very difficult and dangerous. In this colony lie the principal lakes of Australia, which have been already referred to in the general article.

The **climate** of the settled parts of the southern territory of South Australia, which lie almost entirely on the east side of Gulf St. Vincent, is characterized by greater drought than any of the eastern colonies and also by a very high temperature, especially in January and February, when the heat is very unpleasant and trying to European constitutions. The average rainfall for the year is about 21½ inches; the average heat of summer is 73° Fahr., of winter 55°, the mean of the whole year about 65°. The rain falls chiefly during the southern winter and spring, during the whole of which period the weather is delightful. The settled parts of the Northern Territory lie within the tropics and have a similar climate to northern Queensland. The average annual rainfall there is 63 inches.

Extensive **forests** cover the mountains of South Australia, as they do those of the eastern colonies, but the South Australian trees are far from attaining the height of those which grow in other parts of Australia. The average height of the tallest trees (here as elsewhere in Australia various species of Eucalyptus) is only from 100 to 120 feet, the stem being from four to five feet in diameter.

South Australia stands first among all the Australasian colonies in respect of the total extent of land under **cultivation**, and this pre-eminence is most conspicuous, as the table in the general article shows, in the case of wheat-growing. On an average of eight years (1871–78) it had more than twice as many acres under wheat as Victoria, the colony which comes next in this respect; but as the productiveness is greater in the latter colony than in South Australia the average total production in South Australia was only about one-half greater than that of Victoria. For oats, barley, maize, and potatoes the climate of South Australia is in general too dry, and these crops are accordingly little grown; but, on the other hand, fruits thrive admirably, and wine of excellent quality is produced in abundance. The Northern Territory is well adapted for the growth of sugar, spices, and all the products of northern Queensland, and the deficiency of labour is the chief obstacle to rapid development in the cultivation of these commodities. Already this want is beginning to be supplied by the arrival of Chinese. The live stock of the colony are numerous. Since 1874 the

number of sheep has never been less than 6,000,000; and the rich pasture grasses to be found in the region south of Cooper's Creek and elsewhere, and the large areas occupied by the salt-bush, cotton-bush, and other shrubs affording fodder greedily devoured by sheep hold out the prospect of the pastoral industry being very greatly and rapidly extended. Recent explorations of Nullarbor Plain, which embraces an area of 16,500 square miles within the colony, in the south-west, have shown that the greater part of that plain is covered with such bushes, and have made it probable that the interior of that plain is fully as well supplied with rain as the seaboard.

Aborigines of South Australia.

Like the three eastern colonies South Australia is also rich in **metals**, which are found both in the southern settlements and in the Northern Territory. In the south the metalliferous region extends all along the main range from Cape Jervis northwards for about five hundred miles. The principal metal is copper, and the seat of the principal workings is Moonta on the barren Yorke Peninsula, where the copper lodes were discovered in 1861. Besides copper, silver, gold, lead, tin, and bismuth, as well as precious stones, are obtained. Rich gold-bearing quartz-reefs have been discovered in the Northern Territory about a hundred miles south of Palmerston, and in the same quarter a beginning has been made with the working of tin and copper.

The **exports** of South Australia include a considerable quantity of merchandise brought down by river to the mouth of the Murray from New South Wales and Victoria. Between 400 and 500 miles of **railway** have already been constructed in the settled parts of South Australia, and the construction of a line across the continent to Port Darwin in the Northern Territory has been

projected. It is proposed to give a company alternate sections along the line, and to require the completion of the work in fourteen years.

Germans form as yet the only considerable non-British element of the **population** of South Australia. As already mentioned some Chinese have gone to the Northern Territory. The aborigines, numbering in all about 4000, are stated to be peculiarly well treated here, but nevertheless show the same unwillingness as elsewhere to work for the whites.

Adelaide, the **capital** of South Australia, is the only considerable town in the colony. Its population exclusive of suburbs amounted on the 31st of March, 1876, to 31,600, but the estimated population within a radius of ten miles from the post-office at the same date was nearly 60,000. The town of Adelaide lies on the east side of Gulf St. Vincent about six miles from the coast. It was founded in 1836 by Col. Light, and named in honour of the consort of William IV. It is built in the form of a square, and is divided by the river Torrens into two portions, called North and South Adelaide, which are connected by several bridges, one of which, an iron one opened on the 25th of April, 1877, has a span of 108 feet and a width of 54 feet. The streets cut one another at right angles, and many of them are planted with trees. The botanic gardens cover an area of 40 acres, and are among the finest on the globe, the palm-house being hardly matched anywhere. They include a zoological section. Port Adelaide (3000), lies a short distance to the south-west on a small creek running off Gulf St. Vincent, and possesses a harbour which can be entered by vessels drawing 20 feet of water. The creek is separated from the gulf by a tongue of land 2 miles broad, but the construction of a pier and breakwater so as to form an outer harbour in which vessels of the largest tonnage could lie in all weathers is contemplated. The copper-mining town of Moonta on Yorke Peninsula has a population of about 5000, and the neighbouring copper-mining town of Wallaroo has one of above 2000.

WESTERN AUSTRALIA.

Western Australia comprises the whole of the Australian continent to the west of 129° E. The first settlement in the territory belonging to it was made in 1825, when a small party of convicts was despatched to King George's Sound on the south coast. Four years later a private colony was established on the banks of the Swan River in the south-west, but the colony was long in a far from prosperous condition, and at last in 1848 the colonists petitioned the British government to assist them by sending out convicts, a practice which had already been abandoned in the case of the other colonies. The petition was granted. Convicts were transported to Western Australia from 1849 to 1868, and this step had the effect of carrying the colony over its early difficulties, and putting it in the way of becoming prosperous.

Almost the only parts of the colony that are at all well known are the **settled districts**, which lie in the south-west, mainly to the south of about 30° 30′ S. and the west of 118° E. A detached settlement lies further north on

Champion Bay, about 29° S., and another, formed quite recently, on the Fitzroy River, about 16° S. No part of Western Australia yet explored is as elevated as the highest parts of even the most level of the other colonies. Ranges of hills run from south to north within the southern settled districts, but in general their height does not exceed 2000 feet, and there is only one peak in the colony (Mount William in the Darling Range) exceeding 3000 feet in height. In general the surface of the settled districts is level or undulating. In Tasman Land in the north a rugged range of about 2000 feet in height was discovered by A. Forrest in 1879 stretching between 100 and 200 miles south-east from Collier Bay. As regards the character of the soil of the settled districts, it is for the most part sandy or scrubby, but in many places suitable both for sheep-grazing and farming. Various exploring expeditions have been made beyond the settled districts with the view of discovering what natural resources there might exist fit to support new settlements. In 1873–74 Col. Warburton crossed the country from east to west between about 20° and 22° S.; in 1874 John Forrest explored the country between about 25° and 27° S.; and in 1876 Mr. Giles made explorations in the strip lying between about 24° and 25° S. Various other explorations were made further to the south-east by Mr. Giles and Messrs. John and Alexander Forrest, but none of these expeditions resulted in any important discoveries from an economical point of view; and the first expedition rewarded with discoveries of this nature was that of Alexander Forrest, already referred to, in 1879. By this expedition it is estimated that about 20,000,000 acres of pastoral and agricultural land hitherto unknown, an area as large as that of Scotland, has been opened up along the banks of the Fitzroy to 17° 42′ S. and 126° E. (240 miles from its mouth), along the base of the south-western slopes of the mountain range already mentioned as running south-east from Collier Bay, and in the territory stretching north-eastwards from the highest point reached on the Fitzroy into South Australia. Other five million acres of good land were likewise discovered by the same exploring party in this latter colony. Already a squatter settlement has been established in the newly discovered land, and the West Australian government has been obliged to form a new district, to which the name of Kimberley has been given.

Few of the rivers of West Australia run all the year, and still fewer are navigable for vessels of any size. The most important is the Fitzroy, which appears to present no obstacle to navigation by small steamers for at least a hundred miles above its mouth. There are no lakes of any size, but numerous shallow lagoons.

The climate of the southern settled districts is one of the healthiest in the world, the average rate of mortality since their occupation being said to be not more than 10 per thousand per annum. The heat of summer nevertheless is very great, though on the coast it is moderated by the sea-breezes. The mean temperature of Perth is 63° Fahr., but a sun temperature as high as 152° has been registered. The mean rainfall on the coast is 30 inches in the year, but within the Darling Range it is considerably less. On the south coast, again, about King George's Sound, the mean annual rainfall is greater. The northern

district, though within the tropics, is not very humid. Yet the exploring party of Alex. Forrest saw evidence of the Fitzroy having during the rainy season (November to February) overflowed its banks, though these are 25 feet high.

The whole area of the settled districts of Queensland, with the exception of the parts already cleared for cultivation and a few areas occupied by open sandy plain, may be described as one vast **forest**, in the sense of being either plentifully supplied with timber trees or covered with low scrubby trees and bush, the scrub and bush lying chiefly in the north and east. Of the timber trees the most valuable are the red-gum, here called jarrah (or sometimes mahogany), which occupies immense tracts of land; the tuart or white-gum and kari, two other eucalyptuses of great size, the latter of which is found growing for miles together in the southern districts; and the sandal-wood tree, which already affords an export. The dryness of the climate tells much against **agriculture** especially behind the coast ranges, yet the land in crop relatively to population is even greater than in Victoria. The wheat of the colony has suffered greatly from the ravages of red rust, but it is expected that this plague will die out as it has done in the other colonies. The production of wine is not unimportant. The fruits of all warm temperate climates, including the banana and pomegranate, grow abundantly. The olive is cultivated with success in all the settled districts of the south, and sericulture is also profitably pursued. Bees produce honey in astonishing quantity. In the northern district the sugar-melon is largely grown for the manufacture of sugar, and the sugar-cane is expected to become an important product of the same region. The area available for **pasture** is very limited except in the newly explored regions on the Fitzroy River already mentioned, and in the southern districts a special obstacle to the prosecution of pastoral pursuits exists in the presence over large areas of poison plants. One such plant, looking at a distance something like clover and having a pretty flower, is very widely diffused. The dingo likewise commits great ravages among the sheep-flocks, and strychnine is largely used for its destruction. Horses are reared in considerable numbers, and the export of these animals to India forms the principal trade of the colony in home products. **Mining** does not yet form a very important industry in the colony. Ironstone is known to exist in large quantity in the Darling Range, coal is present but not in conveniently accessible localities, and copper ore is to be seen in the Champion Bay district; but the only mineral worked to any considerable extent is argentiferous lead, which is found in rich deposits in the whole region between the Irwin and Murchison Rivers (30°–28° S.). The most important mine is the Geraldine Mine on the latter river. Off Shark's Bay, an inlet about 25° S., there are extensive banks covered with the true pearl oyster, the fishing for which employs a small fleet of boats and seems likely to develop a considerable industry. The only **railways** yet existing in the colony are one 32 miles in length, in Champion Bay district, connecting Port Geraldton with the mining village of Northampton, and another small line connecting Perth, the capital of the colony, with the neighbouring villages of Guildford and Fremantle. All these places lie on the Swan River, on or near the west coast. Perth is pleasantly situated on a slope washed by

a lake-like reach of the river known as Melville water, but is a small place with only about 6000 inhabitants. Fremantle, the principal port of the colony, has a population of about 4000; Geraldton, the port of the Champion Bay district, under 2000.

TASMANIA.

The main island of the colony of Tasmania, formerly called Van Diemen's Land, lies at a mean distance of about 170 miles from the south coast of Victoria. It was discovered by Abel Tasman at the end of 1642, and, if we date from the time of the formation of the first settlement, the colony existing on it is the oldest of all the Australian colonies except New South Wales. This first settlement was, as in the case of New South Wales itself and Queensland, a penal one, and the convicts composing it were sent from Sydney in 1803. The transportation of convicts to the island ceased only in 1853. In 1825 the colony first received an administration of its own, but it was not till 1856 that it had the privilege of an independent constitutional government conferred upon it. As soon as it acquired constitutional independence it formally by an act of parliament adopted its present name in honour of the discoverer of the island in place of its old name of Van Diemen's Land, which had acquired an evil reputation in consequence of the colony having been so long a receptacle for convicts.

As regards its **superficial configuration** Tasmania is divided by a longitudinal depression running from Port Dalrymple to Storm Bay into two elevated regions of unequal extent. The eastern and smaller region is traversed by a very irregular chain stretching from north to south and sending off numerous spurs from different points and in different directions. The mean height of the main chain is upwards of 3000 feet, and there are several summits both in the chain itself and its spurs rising to more than 3800 feet, the highest being Ben Lomond, which attains the height of 5010 feet. The centre of the elevated region on the west is a plateau of above 3000 feet in height, from which a number of mountain ranges proceed to the north, west, and south, while isolated peaks rise in plenty both above the plateau itself and all round it. The highest of these peaks is Cradle Mountain, 5069 feet, the highest mountain in the island, but there are upwards of ten others that exceed 4000 feet in height. In general the mountains of Tasmania have been compared to a net the meshes of which inclose small plains and valleys. The chains are for most part very sharp-ridged, their sides often precipitous, sinking sheer down into gloomy chasms from which burst foaming torrents. For beauty and grandeur of scenery Tasmania is not surpassed among the Australian colonies, not even by New Zealand. The barren rocky islets on the north, inhabited only by a few seal-fishers and catchers of sea-birds, mark the highest points in the land which once connected Tasmania with the opposite part of Australia, but which is now submerged beneath Bass's Strait.

In the number of its permanent **rivers** Tasmania contrasts favourably with Australia, but these are necessarily all short, and from the nature of the surface rapid. The principal is the Derwent, on the estuary of which Hobart Town

stands. On the central table-land there are several lakes lying in the midst of wild and picturesque scenery, such as calls to mind many of the lakes of Switzerland. The largest of these, called the Great Lake, has a circumference of about 50 miles, and an area of about 44 square miles.

Geologically the central elevations of Tasmania are composed mainly of trap or greenstone, while round their bases are numerous and extensive patches of sandstone, clay-slate, and limestone, the remnants of the uniform covering through which the underlying rocks burst in their upheaval. On the east the prevailing rock is granite and in the south-west quartz, but both of these are associated with great quantities of metamorphic rocks.

The **climate** of Tasmania is so healthy and delightful as to have gained for the island the name of the sanatorium of the south. Its more polar situation and the elevation of its surface secure for it a cooler and moister atmosphere than its vast neighbour enjoys. Hot winds do indeed blow in summer from the Australian deserts over the island, but in their passage across the intervening strait they are deprived to a large extent of their noxious and disagreeable qualities. The amount of the rainfall varies greatly with the geographical position. At Hobart Town the total rainfall for the year is often as low as 15 inches, and a similarly low rainfall is general on the east coast, while on the west coast the annual rainfall is from 50 to 100 inches. The mean annual rainfall at Hobart Town (calculated on observations extending over thirty-five years) is 24 inches; the mean temperature about 55° Fahr. In general the cold of winter is only sufficient to produce thin ice on the lowlands and snowfalls on the elevated ranges. Off the south coast storms from the south-west render navigation dangerous.

The **vegetation** of Tasmania is similar to that of the mainland, with which, as we have already indicated, it was formerly connected. Here also eucalyptuses and acacias are the principal constituents of the forests. The slopes of Mount Wellington near Hobart Town are, however, covered with trees possessing a denser foliage, and on the banks of the streams near the west coast the lofty Huon pine (*Dacrydium Franklinii*) is to be seen in abundance. Palms are wanting, but in the moist ravines tall tree-ferns, conspicuous among which is the *Duktonia antarctica*, are common. The flowers of the island are of remarkable splendour.

In its **zoology** also Tasmania resembles the larger island. Kangaroos, opossums, emus, cockatoos, black swans, lories, &c., are all native here; but there are two carnivorous marsupials, once numerous and destructive but now almost extinct, peculiar to Tasmania. One of these is called the Tasmanian wolf (*Thylacinus cynocephalus*), which used to cause frightful havoc among the sheep-flocks of the settlers, and the other the Tasmanian devil (*Dasyurus ursinus*), which wrought equal damage among the poultry.

Agriculture and the rearing of **live stock** form by far the most important occupations of the people. The objects of agriculture are for the most part the same as in Victoria, but the great specialties of Tasmania are the cultivation of hops and of orchard fruits. From a commercial point of view the latter

industry is of peculiar importance to the colony, as it furnishes, either in the form of fresh or preserved fruits, more than one-tenth in value of the total exports. Apples, pears, apricots, peaches, walnuts, quinces, plums, are among those which are produced in the island in the greatest perfection and abundance. The vine is grown too but only for the sake of the grapes. The excellence of the Tasmanian hops has given a great impetus to the brewing trade, which is the most important of the manufacturing industries of the colony. Of the live stock of Tasmania horses and sheep are the most valuable. The Tasmanian draught-horses, a small but strong breed, are in great demand in Victoria and South Australia. The sheep mostly belong to the long-wooled Lincoln breed, for which the climate of the island is peculiarly well adapted. The wool obtains a high price in the London market.

The **minerals** of the island, though abundant and valuable, have not yet received much attention. Gold, silver, lead, tin, copper, and iron are all found, but there is a great drawback to the development of the resources of the colony in the deficiency of coal, which indeed exists in the island but not in easily accessible localities. At present by far the most important of the minerals is tin, which is obtained in rich lodes in the north-west not far from Emu Bay. Some rich gold-workings also exist, the most productive being those of Nine Mile Springs north of Launceston. Valuable topazes are obtained from Flinders Island.

A large share of the external **trade** of Tasmania is carried on with the other Australasian colonies. Formerly the Victorian market was of special importance for the colony, but the recent increase of the tariff in Victoria has had the effect of cutting off that market almost entirely, and has crippled the Tasmanian trade to no little extent. The chief commodities exported are wool, tin, fruits and preserves, timber, and hops. The principal ports are Hobart Town and Launceston, which are connected by a railway 133 miles in length. From this railway a branch proceeds under the name of the Western Railway to Deloraine (45 miles). A third line, intended to connect the mouth of the Mersey with this branch, has been partly constructed. All the railways were originally constructed by English companies, but they have since been partly taken over by the government. All the towns of any importance in the colony are connected by telegraph.

At the time of the first European settlements Tasmania was inhabited by a **native race** resembling the Australian aborigines, but shorter in stature, darker in colour, and having curly, almost woolly, instead of straight hair. These have now all died out. Being first reduced in numbers in wars with the settlers, who often treated them very cruelly, they were afterwards removed to Flinders Island; but there they declined so rapidly that the government transferred the few survivors to the neighbourhood of Hobart Town, and in this new settlement the last of the race, an old woman, died a few years ago.

The prosperity of the colony of Tasmania has not been by any means so great as that of most of the other Australian colonies, a fact for which several causes are assigned. One reason for this tardy growth is the fact that the colony was for so long a period a convict depot, which kept free settlers from choosing

it for their home. Another cause was the discovery of the gold-fields in Victoria, New South Wales, and elsewhere, which led to the emigration of large numbers of the colonists, an emigration which has not ceased even yet. The colonists are stated nevertheless to be in comfortable circumstances, and in the enjoyment of more solid peace and real happiness than in the more prosperous times of former years, and the last census shows that the population is again on the increase.

The capital of the colony is Hobart Town, which is built on several hills on the west side of the estuary of the Derwent about 12 miles from its mouth. It possesses a large park, known as the Queen's Domain, and a magnificent botanic garden. The harbour is sheltered, easily accessible, and capable of accommodating the largest vessels. The population of the town is upwards of 20,000. Launceston, the second town in the colony, and the only other with a population above 1000, stands on the north side of the island, on the Tamar river, a little above the point where it widens out into the estuary of Port Dalrymple. The estimated population is about 11,000.

NEW ZEALAND.

New Zealand is the name given to a group of islands lying to the south-east of Australia, from which it is at the nearest about a thousand miles distant. The group consists of two large islands, a third considerably smaller than either of these two, and a number of still smaller islands immediately surrounding these three. Besides these islands, which constitute New Zealand proper, the Chatham Islands and a number of others in the surrounding seas may be considered as belonging to New Zealand in a wider sense, as being either actually or nominally under the governor of the colony. The principal islands forming New Zealand proper are now known as North Island, South Island, and Stewart Island, but the latter two were formerly called respectively Middle and South Island. The area of North Island with the smaller islands adjacent is 45,687 square miles, or more than half the size of Great Britain; that of South Island 57,877 square miles, nearly two-thirds of that of Great Britain; and that of Stewart Island 708 square miles, or about 2½ times the size of Anglesey; so that the whole area of New Zealand proper is 104,272 square miles, or about one-sixth larger than Great Britain.

DIVISIONS.—Formerly the colony was divided into a number of provinces each with a separate legislature, while there was at the same time a general legislature for the colony as a whole; but in 1876 the provincial legislatures were abolished, and the colony was divided for administrative purposes into counties and burghs. The old provinces still survive, however, as provincial districts, and are still for some purposes administratively distinct. These provincial districts are:—in North Island, Auckland, occupying all the northern half, Taranaki in the south-west, Hawke's Bay in the east, and Wellington in the south-east; in South Island, Nelson in the north-west, Westland in the

west, Otago in the south, Canterbury in the east, and Marlborough in the north-east. Stewart Island now forms a county by itself.

PHYSICAL FEATURES.—**North Island**, the most northern of the group, and separated from South Island by Cook's Strait, which, where narrowest, is about 25 miles wide, is very irregular in shape, and much broken by deep bays and projecting headlands. At one point, namely at the narrowest part of the isthmus on which Auckland stands, opposite bays reduce the breadth of land to only about a mile. The main body of the island, as well as its peninsulas, has for the most part a very rugged, hilly or mountainous surface; and besides being traversed from south-west to north-east by low chains of mountains such as the Te Whaiti and the Kaimanawa Mountains near the middle of the island, and the Tararua and Ruahine Mountains and the Puketoi Range in the south-east, presents a number of lofty isolated peaks, among which the most conspicuous are Tongariro and Ruapehu, near the centre of the island, the former 6500 feet, the latter 9195 feet high, and Mount Egmont or Taranaki at the south-west corner, 8280 feet high.

Scene on the Waikato River, North Island.

The streams which descend from the mountains are extremely numerous, but are mostly mere torrents, which bring down immense deposits of shingle. The largest of the rivers are the Waikato, augmented by the Waipa, and the Manawatu. The former rises in Mount Ruapehu, and after a course of about 250 miles discharges itself on the west coast into Waikato harbour. It is navigable from its mouth for 100 miles by vessels of 30 tons. The Manawatu, rising in the same central chain, and at no great distance from the Waikato, takes an opposite direction, and falls into Cook's Strait. It is navigable by small vessels for 50 miles, but is encumbered by a bar at its mouth with not more than 7 feet water at ebb-tide. Most of the streams have their sources in lakes of moderate size embosomed among mountains and magnificent forests, and presenting scenes of extraordinary grandeur and beauty. The largest of all the lakes is Lake Taupo, which is of an irregular triangular shape, about 36 miles long by 25 broad.

South Island is of a much more compact and regular form than North Island, and though bulging out somewhat towards the south, may be considered as a parallelogram of about 500 miles in length, with a medium breadth of about 130 miles. In the north, where it is separated from North Island by Cook's Strait, it is very much rugged and broken, and so much corresponds with the opposite coast, both in its general structure and the direction of its headlands and submerged reefs, as to suggest and furnish good ground for the opinion that the two islands were at one time contiguous. The south-west coast is likewise much broken, possessing numerous fiords, but elsewhere the coast-line is mostly continuous. The interior is in general even more rugged and mountainous than that of the North Island. In particular it is traversed by the lofty chain of the Southern Alps, which runs parallel to the west coast at a distance varying from about 20 to 50 miles. This chain has an average height of about 8000 feet; but Mount Cook, in lat. 43° 30′ S., has two peaks, the one 12,200 feet and the other 13,200 feet high, and Mount Tyndall, about 40 miles to the north-east, is nearly as lofty. The separate range known as the Kaikoura Mountains in the north-east culminate in a peak 9700 feet in height, and almost all the rest of the surface is more or less hilly and dotted here and there with numerous peaks from 2000 to 5000 or 6000 feet in height. The only extensive level tract is that of the Canterbury Plains, which extend for 100 miles on the east side of the island, and even the tract to which this name is applied consists only to a comparatively small extent of low-lying plains, since it rises inwards in a succession of terraces and terminates on the lower slopes of the mountains. The drainage is effected by numerous streams, which flow directly east or west to the sea, and seldom lose the character of impetuous mountain torrents. The largest river is the Clutha, which has a course of 150 miles, and enters the sea near the south-east angle of the island. There is a large number of lakes, generally situated among the mountains at a considerable elevation, and some of them with a depth estimated at 1000 feet. The largest is Wakatipu, in the south-west, covering 114 square miles, the next in size are Hawea and Wanaka, further to the north-east.

Stewart Island is separated from South Island by Foveaux Strait, about 15 miles wide. Numerous bays, separated by rocky headlands covered with brushwood, indent the coast, which is fringed, more especially towards the south, with numerous islands. The interior is mountainous, but none of the summits exceed 3200 feet. There is some fertile land in the valleys, and some of the higher grounds are well timbered. The only inhabitants are a few natives and whalers.

The **Chatham Islands**, about 350 miles east of the main group, are dependencies of New Zealand. They cover an area of about 630 square miles, and have a small population engaged in seal-fishing and in breeding sheep and cattle for the supply of whalers. There are several other islands to the east, south-east, and south that may also be regarded as dependencies of the colony. These are the **Bounty Islands**, the **Antipodes**, so called because they are not far from the antipodes of Greenwich, **Campbell**, **Auckland**, and **Mac-**

quarie Islands. Auckland and Campbell Islands are both volcanic, and the former highly magnetic. All the islands are without permanent inhabitants, but Auckland is a station for the south-sea whale-fisheries. The area of 105,405 square miles assigned by the *Erdbevölkerung* to New Zealand and the surrounding islands includes, besides these, also **Lord Howe's Island**, an island of about 3 square miles in extent with about a score of inhabitants, lying eastwards from Port Macquarie in New South Wales; **Norfolk Island**, about 17 square miles in extent, lying north-westwards from New Zealand, and nominally under the governor of New South Wales; and the **Kermadek** group, about 20 miles in area, north-eastwards from New Zealand. Till 1855 Norfolk Island was used as a penal settlement by New South Wales. In 1856 the Pitcairn islanders were removed here, and these constitute half the inhabitants, who number about 500 in all. The island is well watered and fertile, well adapted for the growth of fruits and vegetables, and adorned with magnificent specimens of the *Araucaria excelsa*. It is now the headquarters of the Melanesian Mission. (See under MELANESIA). A few inhabitants are, or were at one time, to be found on the largest member of the Kermadek group.

GEOLOGY.—As regards geological structure the North Island of New Zealand contrasts with the South Island in the predominance of volcanic and marine tertiary rocks in the former, and of granitic, schistose, and palæozoic rocks in the latter. Neither island, indeed, has yet been sufficiently explored to have its geology accurately determined, but founding on such indications as have already been obtained one geologist has calculated that volcanic rocks (porphyry, basalt, &c.) and marine tertiary formations occupy each about one-third of the area in the North Island, as against one-tenth of the whole area occupied by both together in the South Island; and in this latter island granitic, schistose, and palæozoic rocks occupy three-fourths of the area, while the first two of these rocks are absent in the North Island and the last is estimated to occupy little more than one-ninth of the whole area. In the North Island almost all the loftier summits bear obvious indications of having been either volcanic cones or craters, and in the truncated cone of Tongariro the volcanic force is still active, while the neighbouring cone of Ruapehu has not long ceased to be so. The volcanic phenomena of another kind to be witnessed in the island are among the most extraordinary in the world. The geysers, hot springs, and hot lakes round Lake Taupo and elsewhere far surpass those of Iceland in grandeur, and are in some ways even more remarkable than those of the Yellowstone Region of Wyoming. Most wonderful of all is Lake Rotomahana, not far from Lake Taravera to the south of Plenty Bay, a warm lake surrounded by geysers and boiling springs, the principal of which, 80 feet above the surface of Rotomahana, sends its water down to the lake over a vast series of terraces covered with marble-white sinter, which has been deposited by the water in the course of ages. Earthquakes, too, are frequent in the North Island particularly at Wellington, where, in October, 1848, the shocks were so violent as to shatter most of the houses and public buildings, and spread general terror and dismay. Besides the volcanic promontory called Bank's Peninsula and the similar rocks at Otago Harbour the

principal formation of recent geological date in the South Island is that of the Canterbury Plains, which are of glacial origin. At least thirty successive terraces, marking the lines of old glacier moraines, have been counted in the ascent from the sea to the Alps.

With mineral wealth New Zealand is liberally supplied. In North Island the district of Auckland possesses, besides some gold and copper, abundance of coal, some very rich workings of which lie in the Thames basin, and Taranaki has along its sea-beach titaniferous ironsand of extraordinary purity. In the South Island gold (first discovered in 1861) is the principal mineral and is found in all the provinces except Canterbury, most abundantly in Westland (where it is mainly found in alluvial deposits) and Otago, the proclaimed gold-field (chiefly auriferous quartz) in the latter province extending over about 3900 square miles; and in addition to gold Nelson has chrome ore, lead and copper ores, and vast beds of the finest ironstone and good coal, this last mineral apparently underlying the whole country from the Buller to the Grey River; Westland has coal, and Otago has immense quantities of tertiary coal besides some true coal of the carboniferous period, and likewise possesses an excellent building stone of a light, almost white colour, easily worked, and possessing, like the Bath-stone of England, the valuable property of becoming harder the longer it is exposed to the atmosphere. Stewart Island has deposits of ironsand like that of the province of Taranaki.

CLIMATE.—This in a country stretching through 12° of latitude, covered by mountain ranges several of them clothed with perpetual snow, is necessarily very much diversified. At Auckland the annual quantity of rain is about 50 inches, whereas in London it is only about 20. On the west side of South Island the annual rainfall is more than double that of Auckland, amounting at Hokitika to 110 inches, and at Bealey to 105, while on the east side of both islands it is less; at Dunedin (near 46° S.) 25½ inches, at Christchurch (about 43° 30′ S.) 32 inches, and at Napier (about 39° 30′ S.) in North Island 36 inches. In both islands the total annual rainfall is distributed with unusual uniformity throughout the year. The prevailing winds are from the north-west and the south-east, and are accompanied with frequent hurricanes, particularly in Cook's Strait, which acts as an immense funnel through which the tempest rages almost without intermission, and at all seasons. The mean temperature, calculated on the result of from ten to fifteen years' observations, is at Auckland 60° Fahr., at Wellington 56°, at Christchurch 55°, at Dunedin 51°, and at Hokitika 54°.

VEGETATION, AGRICULTURE, &c.—New Zealand, with the adjoining groups of islands, forms a botanical centre distinguished by the prevalence of a peculiar class of vegetable forms. The species are nearly equally divided between the monocotyledonous, the cellular, and the dicotyledonous plants. To the cellular belong numerous varieties of algæ, lichens, fungi, and more especially ferns (130 different species), which, replacing the Gramineæ of other countries, form almost the only vegetation over immense districts. Some of them are more than 30 feet high, and remarkable for the elegance of their forms. One of the most common is the *Pteris esculenta*, the root of which is used as food by the natives and greedily

devoured by pigs, which, in consequence of its abundance, are now running wild in great numbers. Another remarkable plant of great economical value (even furnishing an article of export) is the flax-plant (*Phormium tenax*), which is found in almost all situations, on the driest hills, in swamps, and on the sea-shore within reach of the spray. One species of the plant has leaves 12 feet and flower-stalks 20 feet long. The finest flax is obtained from a cultivated variety. Among the dicotyledonous plants the most remarkable belong to the Coniferæ, and furnish valuable descriptions of timber. Among others is the kauri or damar pine, with a smooth gray columnar trunk from 30 to 40 feet in circuit, and nearly of the same girth through its whole height of from 60 to 90 feet. One remarkable fact connected with it is that it is confined to a comparatively small part (mainly the long and deeply indented peninsula) of the district of Auckland in North Island, and to land which seems specially rugged and unfertile. Besides Auckland the best wooded districts are Taranaki (three-fourths of which is dense forest), Marlborough, and Westland (where white pine and cedar are remarkably abundant).

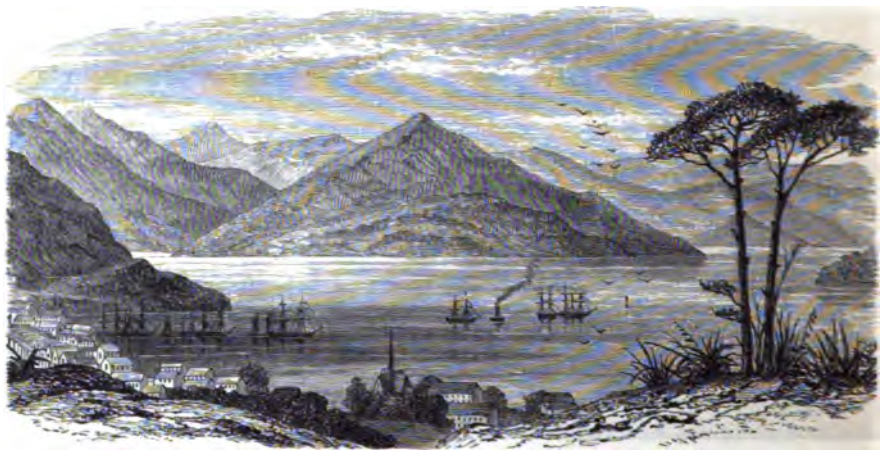
To the biologist a comparison of the native flora of New Zealand with that of Australia brings out facts of peculiar interest. On the one hand there is a remarkable correspondence between the two floras, more than two-thirds of the species and more than nine-tenths of the genera which belong to New Zealand, but are not peculiar to it, being found also in Australia. On the other hand there is a remarkable difference between the two, inasmuch as many of the most characteristic vegetable forms of Australia are altogether wanting in New Zealand. In this group, for example, there are no eucalyptuses, no acacias, and no casuarinas, and the great family of the Leguminosæ, which is represented in Australia by above 1000 species belonging to about 100 genera, is represented in New Zealand by only 5 genera and 13 species. An ingenious explanation of this similarity and diversity has been found by Mr. Wallace in two facts belonging to the geological history of the two regions. The one of these is the fact already mentioned in the general notice of Australia as accounting for the differences in the botany of eastern and western Australia, namely the existence in former times of a sea dividing Australia from north to south into two portions; and the other is the existence of a submarine bank not more than 1000 fathoms in depth connecting the north-west of New Zealand by way of Norfolk Island with the Great Barrier Reef and north-eastern (tropical) Australia, and pointing to the fact of a former land connection in this part. Mr. Wallace, then, supposes this land connection to have subsisted at a time when east was still separated from west Australia, and when many if not most of the characteristically Australian types of vegetation were still confined to the latter. This supposition, it will be seen, accounts not only for the presence of a great many Australian types and the absence of others in the vegetation of New Zealand, but also for the fact that New Zealand, although lying more than ten degrees beyond the tropics, possesses a remarkable number of tropical forms in its flora.

The soil and climate of New Zealand produce in perfection every English grain, grass, fruit, and vegetable. Wheat, potatoes, onions, apples, plums,

peaches, and their congeners, are excellent in quality, and the peach bears profusely as a standard. In the gardens of the warmer valleys fruits of a semi-tropical character—the pomegranate, citron, orange, and olive—might be raised. The vine does not in general thrive particularly well, although it can be cultivated with success in the district of Hawke's Bay on the east side of North Island. Silk-worms are reared in the district of Canterbury. Maize, the taro, a native of the Sandwich Islands, and the kumera, a sweet-potato, are partially cultivated by the natives in sheltered sunny spots of the North Island; but under common field cultivation maize will not ripen. The chief grain-growing districts of the colony are Taranaki (which is unrivalled both for its grain and root crops), Wellington, and Canterbury; the chief sheep-rearing ones Canterbury and Hawke's Bay. Both Otago and Westland are at present chiefly remarkable for their mineral wealth, but three-fifths of the former district is well adapted for pastoral and agricultural pursuits, and in the latter some of the finest agricultural land has been found to lie between the low coast hills and the main range of the Alps. The quantity of wheat produced by New Zealand increased between 1868 and 1878 from about 1,600,000 to upwards of 6,000,000 bushels, and the number of sheep within the same period from under 9,000,000 to upwards of 13,000,000, or not much less than half the number in the United Kingdom. The New Zealand sheep are chiefly merinos. Nearly a fifth of the entire surface is held on terminable pasture licenses by about 900 squatters, some individuals among whom, the "New Zealand sheep-kings," own upwards of 300,000 sheep. In the number of sheep possessed by the colony New Zealand is now ahead of all the other Australasian colonies except New South Wales.

ZOOLOGY.—As in the case of the flora so also in that of the fauna of New Zealand there is a striking absence of the most characteristic Australian types. New Zealand has no kangaroos or wombats; the winged birds of New Zealand are quite different from those of Australia, and the same is true of the New Zealand lizards and fresh-water fishes, as well as of the more important insect groups. In animals New Zealand is in general singularly deficient. Captain Cook found no trace of any quadrupeds except a sort of fox-dog and a few rats, and both of these may have been introduced by man, as the former is said certainly to have been. The rats at present infesting the islands are of comparatively recent introduction, but the natives speak of another rat which abounded in the forests before the arrival of the Europeans, but which is now nearly if not quite extinct; and this rat may or may not be indigenous. Several trustworthy observers report having seen an otter-like animal or traces of such an animal high up in the mountains, but no specimen of this animal has yet been captured. The only undoubtedly indigenous mammals of New Zealand are said to be two species of bats. There are upwards of eighty species of native birds, the most remarkable of which are four species of wingless birds belonging to the genus Apteryx, and called by the natives *kiwis*. They vary in size from that of a small fowl to that of a turkey, and have a dense covering of hair-like feathers. Still more remarkable are the remains of another wingless bird known

to the natives as the *moa* and called by naturalists Dinornis, a bird as large or nearly as large as the Æpyornis of Madagascar (above 11 feet in height), and like it only recently extinct. The bell-bird and the tui are good songsters. Snakes are altogether wanting. The coast teems with fish, among which one of the best is the hapuka, resembling the cod, but superior to it both in nutritive properties and flavour, and weighing from 10 to 70 lbs., and occasionally 100 lbs. River fish are scarce and poor. All the common European quadrupeds appear to be easily acclimatized; and rabbits in particular have multiplied to such an extent as to make it necessary in certain districts to establish rabbit-boards to take measures for their destruction. As already mentioned there are pigs now running wild as well as cats. Pheasants, partridges, quails, and other



Port Lyttelton, South Island.

European birds have been introduced, and have so far thriven successfully. The common garden bee, introduced with signal success, frequently swarms in the woods.

COMMUNICATIONS.—The difficulty of constructing roads in New Zealand, in consequence of the number of marshes and impetuous rivers and the great amount of forest and scrub land and fern-thickets, has made the laying of railways peculiarly necessary for the development of the colonial resources, and since 1872 this work has been carried on by the government with great energy. A comprehensive scheme of railways was then begun and in 1881 about 1200 miles of railway had been laid at a cost of £12,500,000. The profits derived from the railways are already sufficient to pay more than three-fifths of the interest on the money borrowed for their construction. The lines are both in North Island and South Island, but principally in the latter, where the main continuous line runs from Korvai River in Canterbury along or near the east coast to Bluff Harbour on the south coast of Otago, with a branch from Invercargill, near Bluff Harbour, to Kingston on Lake Wakatipu. The principal ports are Auckland, Wellington,

Dunedin, Lyttelton, and Bluff Harbour. A considerable and increasing trade is carried on with California and the South Sea Islands as well as with the mother country.

ABORIGINES.—The natives of New Zealand, called Maoris, a people of Malay origin, but showing in their features great diversity of type, are supposed to have immigrated from the Sandwich Islands some centuries ago. A hundred years ago, when New Zealand was first visited by Europeans, they numbered, it is believed, several hundred thousands, and were a brave and intelligent race, acute observers of nature, tolerably advanced in civilization, living under fixed laws, dwelling in good houses, and wearing good clothes, but at the same time often engaging in intertribal warfare, which was carried on with sanguinary cruelty. Captives were made slaves, and the slain in battle were eaten. Polygamy was also practised among them, but under European influence polygamy, slavery, and cannibalism have been given up, as have also some other peculiar practices, such as that of tattooing their bodies in ornamental patterns, and the observance of the *tapu* (taboo) superstition, which is still general among the unchristianized South Sea Islanders, a superstition resembling the *fady* of Madagascar and the *quixille* of Western Africa. Where it prevails it gives to the priests the right of declaring certain persons and things sacred and inviolable, or puts a prohibition on the performance of more or less trivial actions. In what the Maoris have adopted from Europeans, however, they have, like many other barbarous races, shown more readiness in contracting European vices than in taking on the higher elements of our civilization, and from that and other causes they are now rapidly dwindling in numbers. Within the last forty years their numbers are estimated to have sunk from about 100,000 to less than 50,000. These are all with the exception of a few hundreds located in the North Island, where the east coast of the Auckland district and the Waikato region in the same district are mainly in their hands. By missionary efforts a great part of them have been converted to Christianity; many of the young can read and write their own language, and the Bible has been largely circulated amongst them. Some have acquired considerable property in stock, cultivated lands, coasting vessels, flour-mills, and specie; a few even have accounts at the banks, and others have taken shares in local companies. In the neighbourhood of the settlements they are adopting articles of European dress; but the great majority of them have made very

Natives of New Zealand.

little real progress in civilization. About 15,000, who live on a block of land about 100 miles by 50 miles in extent on the west coast of North Island, own allegiance to the so-called Maori king, who endeavours to keep his people altogether isolated from European contact; and since 1863 a singular sect, known as the Hau-Haus, who are described as having appropriated to themselves the promises made in the Bible to the Israelites, have retarded the spread of Christianity.

CHIEF TOWNS.—The seat of government of New Zealand has been fixed since 1865 at Wellington, the central situation of that town near the south-western corner of the south-eastern peninsula of North Island making it very suitable for the purpose. Its harbour is a fine sheet of water, six miles in length by six in breadth. The population is from 10,000 to 20,000. The largest and most important commercial town in the colony, however, is Dunedin, on the east coast of the district of Otago in South Island, occupying a picturesque site at the south-west side of a winding inlet about nine miles from Port Chalmers, with which it is connected by rail. It was founded in 1848, but made little progress till after the discovery of the rich gold-fields of Otago in 1861. The college (affiliated to the New Zealand University) having its seat in Dunedin, and known as the university of Otago, is the principal seat of the higher education in the colony. The population in 1881 amounted to 43,000. Christchurch, further north near the same coast as that on which Dunedin stands, rather more than 200 miles distant from that town in a direct line, is the second town in New Zealand in respect of population, having at the census of 1881 a population of 28,000. It is situated in a large plain on the Avon, about eight miles from its port of Lyttelton, with which it is connected by a railway tunnelled at great expense through the Lyttelton hills. At Lincoln near Christchurch there is an agricultural school with a farm of 500 acres attached to it, part of which is devoted to agricultural experiments. Auckland (population in 1881, 22,000), is the

largest town in North Island and the third in size in the whole colony. It is very picturesquely situated on the north side of the narrow isthmus in the north-western peninsula, and has the advantage of possessing two harbours, one on the east and one on the west side of the island. The eastern one, called Waitemata Harbour, is the harbour of Auckland itself and is one of the finest in New Zealand, the western, called the harbour of Manakau, is only six miles distant and is connected with Auckland by rail. Regular steam communication is maintained both with Sydney, which is 1315 miles distant, and with Melbourne, about 1650 miles distant. The colonial seat of government was at Auckland till it was transferred to Wellington.

HISTORICAL SKETCH.—New Zealand, discovered by the Dutch navigator Tasman in the same year as Tasmania (1642), and about 130 years later visited on more than one occasion by Capt. Cook, had no European inhabitants till 1814, when a mission was established by the Church Missionary Society on the Bay of Islands near the northern extremity of North Island, and had no colonists till twenty-six years later. The colonization of the islands was due to a company started in England under the name of the New Zealand Company, which sent out the first batch of emigrants in May 1839. Arriving in January 1840 these formed the first colonial settlement at Port Nicholson (Wellington), and in the same year the first governor of the colony founded another settlement at Auckland, and concluded with the natives (or with a number of the chiefs who were taken to represent all) the Treaty of Waitangi, by which the natives were secured in the possession of their lands, while they on their part recognized the sovereignty of the islands as belonging to the queen. In September 1841 followed the settlement of New Plymouth (Taranaki) by the company, and in October that of Nelson in South Island also by the company. In March 1848 the settlement of Otago was founded under the auspices of the Free Church of Scotland by a company working in connection with the New Zealand Company, and in December 1850 that of Canterbury was similarly founded in connection with the Church of England. In 1852 constitutional government was inaugurated. Down to 1865 there were several risings of the natives against the European settlers, and a desultory warfare was carried on at intervals; and even since that date the natives have shown themselves troublesome on more than one occasion.

NEW GUINEA.

New Guinea, or Papua, is the largest island in the Malay Archipelago, but, as we have seen, belongs by its geological history and its vegetable and animal life to the Australian and not to the Asiatic members of that group, and by geographers it is generally regarded as belonging to Australasia. It is separated from Australia on the south by Torres Strait, which, like Bass's Strait between Australia and Tasmania, is studded with islands marking the situation of the

former land connection between the two land-masses. It was long doubtful whether this island or Borneo was the larger, but the most recent calculations assign the superiority in size to New Guinea, which is found to have, exclusive of the small islands adjacent, an area of about 300,000 (more accurately 298,990) square miles, which is about one-eighteenth larger than Borneo, or about 3½ times the size of Great Britain. Including Frederick Henry Island and the smaller islands all round the total area is about 312,000 square miles.

The coasts of New Guinea are for the most part lofty, with mountains coming close to the sea, but in the neighbourhood of Torres Strait, on the west side of the large bight called the Gulf of Papua, the shore presents the appearance of a marshy flat covered with dense forests. In the interior there are still loftier partly snow-clad mountains. Some are volcanoes. In the south-east end Mount Owen Stanley is said to rise to the height of 13,200 feet, and there are several other peaks in the range to which it belongs which appear to rise above 9000 feet. In the western half of the island there is another range called the Snowy Range, running east and west from Geelvink Bay, but the whole of the interior, except a few small districts near the coast, still remains unexplored.

The **Louisiade Archipelago**, which stretches eastwards from the south-eastern extremity of New Guinea to about 154½° E., consists of a large number of islands, only three of which are of considerable size. They are partly groups of atolls, but most of them are surrounded by barrier reefs, and in general the coral reefs render the navigation of the channels between them very dangerous.

The climate of New Guinea, at least in the south-east, where missionary and other settlements are now being attempted, is very trying both to Europeans and Polynesians, all foreigners suffering much from malarial fevers. In a recent year the average maximum heat at Port Moresby in 9° S. and about 145½° E. was about 87° Fahr., the average minimum about 73½°. The rainfall in the whole year was 34 inches. The rainy season is from January to May.

Belonging as New Guinea does to the Australian region its flora and fauna resemble those of the still larger island on the south side of Torres Strait. The forests abound in enormous trees, including the camphor-tree; and bananas, coco-nuts, sago, sugar-canes, taro, and yams are cultivated by the natives. Besides the coco-nut and sago palm, the areca and other palms are also abundant, and so also are the bread-fruit, several varieties of pandanus, variegated crotons, crimson dracænæ, orchids, creepers, and ferns. There are but few quadrupeds, and these belong for the most part to the marsupials. Besides Australian birds New Guinea has many striking birds of its own, such as the bird-of-paradise, the raquet-tailed king-fisher, the great crown-pigeon, and the crimson lori. Hornbills are very common and sometimes of great size.

The inhabitants of New Guinea mainly belong to the Papuan race, which derives its name from the Malayan word *papuwah*, signifying curly-haired, and denoting one of the principal characteristics of the race. Besides being curly, even woolly, their hair is very coarse and dry, and it grows in a large number of small dense bunches. The colour of their skin is a very dark brown, almost black, but according to some ethnologists presents all shades from the light

brown of the Malay to Negro-black. In stature they are fully as tall as Europeans. On New Guinea itself the people of this race, at least the men, go naked, and like the Australians have their bodies hideously marked with raised scars. Their houses are built on stakes, and resemble those of the lake-dwellings discovered in central Europe. Generally they are clustered in small villages, in each of which a chief exercises as much authority as his personal qualities can ensure. The men always go armed, their arms being a lance, club, and bow and arrows. They have also knives and adzes made with sharpened flints like those of the stone age. Trade is much more highly developed among them than among the aborigines of Australia. At sea they use a kind of canoes (*prahus*) made of tree trunks, which they propel by means of long oars or sails. (See EASTERN ARCHIPELAGO, People.) In the west of the island there are many Malay settlements, and in the extreme south-east there is a race presenting, it is said, very marked differences from the Papuans proper. These inhabitants of the south-east "belong undoubtedly," according to the Rev. G. Lawes, a missionary in that region, "to the same race as the New Zealanders, Tahitians, Samoans, &c." Their colour is much lighter than that of the dark race living further west and in the interior, and their disposition seems to be much milder.

Natives of New Guinea.

The discovery of New Guinea is sometimes attributed to Antonio Abreu, who is said to have made the discovery in 1511; but the first navigator who is known to have visited the island is another Portuguese, Jorge de Meneses, who touched on it in 1526. Several surveys of parts of the coast were made by the Dutch from 1826 to 1835, and in 1828 the Dutch formally took possession of the island from its western extremity to lat. 134° E. From the year 1858 they have claimed as far as 140° 50′ E. The area of the Dutch portion of the island is about 68,000 square miles, and its population is very roughly estimated at 200,000. The population of the island generally is very small in proportion to its area.

In recent years New Guinea has received a good deal of attention from explorers having various aims. The naturalists were the first to make incursions into its interior, and among these Mr. A. R. Wallace, who visited it in 1858, was the pioneer. He was followed by the Dutchman Rosenberg, the Germans Meyer and Bernstein, and the Italians Beccari and D'Albertis, both of the last of whom have made repeated visits to it. The missionaries came next, and mission stations have been formed by Germans at Port Dore and Andai on the

north-west coast, and by the London Missionary Society at various points on the south-east coast. Some of the missionaries, particularly Mr. Macfarlane, Mr. Octavius Stone, and Mr. Lawes, have shown themselves enterprising explorers. In 1875 the two former discovered a large river in the south called by the natives Mai Kassa (since called the Baxter River), navigable for ships of ordinary size for at least 60 miles up. At the end of the same year Mr. Macfarlane ascended along with D'Albertis about 150 miles up the Fly, another large river, which enters the Gulf of Papua on the west, and which D'Albertis has since ascended twice, in 1876 and 1877, reaching on the former occasion a distance of 500 miles up, which was as high as his vessel, a steam-launch furnished by the government of New South Wales, could be navigated. As the result of his explorations Signor D'Albertis does not hold out any great hopes with reference to the region traversed by the Fly. A more promising part of the island is the south-eastern peninsula, where there are mission-stations at Hall Sound and Port Moresby on the coast opposite Queensland and elsewhere. There the mountains are clothed with forests which might prove valuable, the vast plains are rich in pasture-land, and the natives are said to be more intelligent and better disposed than in other parts of the island. The question of annexing the eastern portion of the island to the British Empire has again and again been mooted within the last few years. Queensland has already appointed an agent at Port Moresby; and in July, 1878, Mr. Chester was despatched by Sir Arthur Gordon, the British high commissioner in Polynesia, to represent him among the native chiefs. Mr. Chester, in urging the appointment of a resident commissioner to adjudicate in disputes with the natives, says, "Our recent cruise will have dispelled the prevailing idea that New Guinea is a country solely inhabited by savage races with whom it is impossible to hold intercourse, and that annexation is an easy matter. These people cannot be dispossessed of their country as easily as the aborigines of Australia. They have vested interests and rights that cannot be disregarded; but I am sanguine that the day is not far distant when this land will be opened up to the markets of Manchester and Sheffield."

MELANESIA.

The groups into which the small islands scattered over the western part of the Pacific Ocean are divided differ with different geographers, but it is now usual to arrange them under four heads, Melanesia, Polynesia, Micronesia, and the Sandwich Islands, although there are variations in the number of islands grouped under these heads. The arrangement followed here is that adopted in the *Erdbevölkerung* of Behm and Wagner, from which all the areas and populations are taken. Under this arrangement the name of Melanesia is applied to a group containing many islands of considerable size, stretching from the north-east of New Guinea near the equator south-eastwards nearly to the Tropic of

Capricorn, and having an aggregate area equal to about two-thirds of that of Great Britain. They thus lie entirely within the southern half of the torrid zone, and have a tropical climate and for the most part a rich tropical vegetation. The greater number of them lie within the domain of the southern monsoons, in which the winds blow at opposite seasons of the year from the south-east and north-west, the season in which the latter winds blow (the winter months of our hemisphere) being usually the rainy season, although all the islands are liable to receive more or less rain at every season. The further east the islands lie the longer do they remain every year within the range of the south-east trade-wind. During the rainy season the climate in most of the islands is very unhealthy, but New Caledonia and the Fiji group, as well as other islands, are free from this disadvantage. In that season, too, especially in the months of January and March, many of the islands and the neighbouring seas are liable to be visited by violent hurricanes. The flora and fauna of the islands for the most part resemble those of New Guinea, but in the more easterly members of the group there are to be found many types of vegetation characteristic of the islands still further east and of New Zealand.

The inhabitants belong mainly to the same dark-coloured race as is found in New Guinea, and it is to this circumstance that the islands owe the collective name that geographers have given to them (from the Greek *melas*, black, and *nēsos*, an island). They mostly belong to a very low stage of civilization, but the inhabitants of the Fiji Islands, though they belong to the same race as those of the other groups, are much less barbarous, having been greatly benefited by the influence of Polynesians. But barbarous as the Melanesians are they are all sufficiently advanced to engage in agriculture, and in New Caledonia this industry is even pursued with a great amount of skill, the hill slopes there being artificially formed into a number of terraces on which crops are raised by means of irrigation channels. The principal objects of cultivation are yams, bananas, and cocoanut palms, and in some of the islands (as New Caledonia and the Fiji group) also taro. Swine and fowl are kept as domestic animals, the former often in great numbers. In some of the islands no little advance has been made in some mechanical arts. The boats of the Solomon Islanders are constructed with peculiar skill, and the same people are excellent carvers.

New Caledonia and the **Loyalty Islands** are in the hands of the French, and the **Fiji Islands** are a British crown colony, but in the other islands the only association of the natives with Europeans is in the way of trade and through the efforts of missionaries to Christianize them. In many of the islands Europeans are regarded with dread and hostility, so that no European ventures to land on these islands; but in some cases this has arisen from the proceedings of the Europeans themselves, who, for example, on New Caledonia and elsewhere have been in the habit of cutting down sandalwood trees without paying any regard to the rights of the natives, whom they often treated with great cruelty. Where a different mode of treatment has been followed a different spirit has in some instances been developed. On several of the islands missionaries have at length succeeded in gaining the confidence of the natives,

and have effected a marked improvement in their habits and dispositions. Thus far no missions have been established in the New Britain archipelago, but in all the other groups more or less progress has been made, above all in the Fiji Islands, where Wesleyan missionaries in particular have operated since 1835 with great success. Very commonly Polynesian teachers are first sent to the islands to prepare the way for European missionaries. A peculiar method of Christianizing these islands is followed by the Melanesian Church Missionary Society, founded in 1850 by Bishop Selwyn, a New Zealand bishop. Every year a ship is sent to certain islands to try to induce the natives to allow some of the young to be taken away in order to be educated in the Christian religion in a particular institution now stationed on Norfolk Island. When trained these people are sent back to their native islands, and when the influence of their training has made itself felt among the rest of the inhabitants, Europeans are sent to establish schools in the islands to which they belong and to reside among the people at least during the dry or healthy season. This society has operated with more or less success in the New Hebrides, in the southern members of the Solomon group, and elsewhere.

The following table shows the area and estimated population of the different island groups composing Melanesia:—

	Area in sq. miles.	Population.		Area in sq. miles.	Population.
New Britain Archipelago (with the Admiralty Islands),	18,186	364,000	New Hebrides,	5,106	70,000
Solomon Islands,	16,950		New Caledonia (with small islands adjacent),	6,595	41,694
Queen Charlotte or Santa Cruz Islands (with the Tucopia group[1]),	387	5,650	Loyalty Islands,	1,059	13,174
			Fiji Islands,	8,034	112,272
			Total (in round numbers),	56,300	600,000

[1] Three small islands inhabited by people of Polynesian race.

NEW CALEDONIA (so called by Capt. Cook) is a large island to the south-west of the New Hebrides stretching from north-west to south-east from about 20° 5′ to 22° 16′ S. It is an island of difficult access on account of the fact that two broad belts of barrier reefs stretching from north-west to south-east, and surpassed in superficial extent only by the great Australian reef, not only inclose the island, but extend beyond it both on the north and (to a less distance) on the south so as to have an entire length of upwards of 450 miles. The island itself is about 200 miles in length. The best harbour in the island is probably that of St. Vincent in about 22° S., but the most frequented is the Port de France in 22° 17′ S., on which Noumea, the capital of the island, stands. The interior of the island is occupied by mountains running in the same general direction as the island itself. The vegetation contrasts with that of most of the other Melanesian islands in the absence of dense marshy primeval forests, and resembles in places that of New Zealand in presenting large tracts (especially on the east) covered

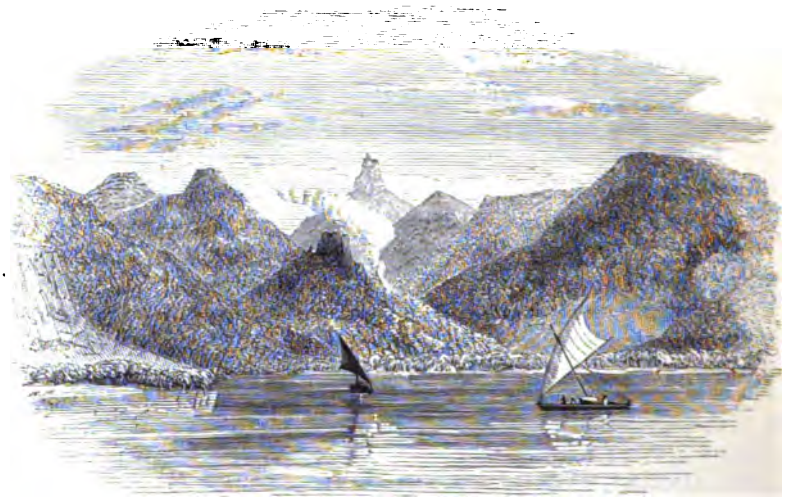
with ferns and grasses, and in other places that of Australia in possessing broad arid plains. The absence of a rich tropical vegetation is compensated by a healthy climate, without excessive heat.

New Caledonia was taken possession of by the French on the 24th of September, 1853, and though a small free colony has been formed there, the island itself with the smaller islands adjacent is chiefly used as a place of deportation for convicts and political offenders. The government of the island is essentially military, and the frequent escape of convicts has rendered the authorities very strict.

The area of the island is 6450 square miles, or about one-fourteenth of that of Great Britain, the aggregate area of the group, including the **Isle of Pines** and some smaller islands, about 6600 square miles; the population of the group by enumeration of 1876, 41,694, of whom 17,282 were Europeans (chiefly convicts, soldiers, and administrative officers with their families) and 24,412 natives. Of the free colonists a considerable proportion have immigrated from Australia, so that the English language and English customs are pretty widely diffused. **The Loyalty Islands**, a group composed chiefly of madrepore limestone presenting for the most part an elevated surface of naked rock, had in 1876 a population of 13,174, of whom 63 were Europeans.

FIJI, or **Viti** Islands (the former the Tongan, the latter the native form of the name), are an island group in the South Pacific Ocean, between about lat. 15° 30′ and 19° 30′ S., and lon. 177° E. and 178° W. The entire group, which was discovered by Tasman in 1643, comprises altogether 260 islands, eighty of which are inhabited, and is subdivided into two minor groups, the Eastern and Western or Asaua group. Two of the islands only are of large size, namely **Viti Levu** (4480 square miles, or nearly one-eighteenth of the size of Great Britain), and **Vanua Levu** (2473 square miles). The other principal islands are **Vuna, Kantavu, Ovalau, Bau** or **Ambau, Muthuatu**, and **Goro**; some of the others, though smaller, are populous. Most of the remainder are mere islets. The islands are of volcanic origin, but no signs of volcanic heat have been met with, excepting at Savu-Savu, on the south shore of the large island of Vanua Levu. Appearances of craters, however, are frequent. The peaks are usually basaltic cones or needles, some of which rise to the height of several thousand feet. The coasts are almost surrounded with coral reefs, and where the shore is not precipitous the beach is formed of fine coral sand. The soil is generally fertile, consisting of a deep yellow loam with a large admixture of vegetable matter. The climate is mild and vegetation very rapid in its growth; the temperature ranges between 62° and 80° Fahr. near the sea. Throughout the greater part of the year the islands lie within the range of the south-east trade-wind, but one-half of the year (May to September, while the sun is in the northern hemisphere and the air cooler) is comparatively free from rain, while abundant rains fall, principally in the afternoon, during the remainder of the year. During that period winds from the west and north-west are frequent. As the result of five years' observations at a station in the islands the mean temperature of the year was found to be 79·1° Fahr., the mean highest 97·7°, the mean lowest 58·5°, the

mean daily range 15·6°, the annual rainfall 124·15 inches. The climate is healthy, the most dangerous disease for Europeans dysentery. Like most other islands exposed to the trade-winds the Fiji Islands are clothed with a far richer vegetation on the east, which is the windward and moister side, than on the west side. On the former side are huge foliage trees, countless palms, ferns, creepers, and epiphytes; on the latter chiefly grass, with screw-pines, casuarinas, and acacias scattered here and there over the surface. Among the natural products of Fijian vegetation may be mentioned the dilo-tree (*Calophyllum inophyllum*), producing a valuable oil; the candleberry-tree, from which candle-nuts are obtained; the croton-oil plant; the *Tacca pinnatifida*, from which a fine arrow-root is manufac-



Valley of Voona, in the Island of Ovalau (Fiji Islands).

tured; the paper-mulberry tree, from which the Fijians obtain the material for making their native cloth; the *Dammara vitiensis*, a native kauri pine which rivals that of New Zealand; the coco-nut palm, which grows wild along the sea-coasts and is also largely cultivated; the bread-fruit and banana, which are both abundant; besides a great variety of fruit-trees, among which is a peculiar tree called the *ivi* (*Evia dulcis*), which produces a large oval yellow fruit resembling the apple in flavour. Yams, taro, sweet-potato, maize, tobacco, cotton, coffee, and the sugar-cane are cultivated, and the first forms the staple food of the people. Sugar-cane is the principal object of cultivation among the settlers of European origin, and the production of sugar is rapidly increasing. About one-eighth of the entire surface is said to be adapted for this product. Next in importance to sugar as an object of cultivation for European settlers is coffee; and cacao, tea, and cinchona are also among the products for which the islands are well suited. The chief obstacle to the extension of European plantations has hitherto consisted in the deficiency of suitable labour. The native Fijians, who are tolerably

industrious, prefer to work on their own account; Polynesians have been introduced, but have not proved altogether satisfactory; but Indian coolies are now arriving, and it is expected that through them the want will by-and-by be adequately supplied. Among domestic animals swine, introduced by Captain Cook, are in general use as food, and fish are plentiful in the surrounding seas. Sheep and cattle have been introduced by European settlers, and some of the smaller uninhabited islands furnished with good grass have been purchased from the chiefs for sheep-runs. The principal exports are copra and other products of the coco-nut palm, sugar, maize, cotton, coffee, tortoise-shell, bêche-de-mer, and candle-nuts.

The inhabitants are given to agriculture, and inclose, dig, and irrigate their lands, using iron implements introduced by traders; the women perform most of the manual labour. They manufacture arrow-root and coco-nut oil. The houses are often neatly constructed, and surrounded with ornamental grounds very tastefully arranged. The early character of the islanders was bad. They had deservedly the reputation of being cannibals. In 1804 some convicts escaped from New South Wales to Viti Levu, and exercised no good influence upon the natives. The quarrels among the people became more frequent and sanguinary, and some of the defeated chiefs called in the aid of the natives of Tonga. The immigration of the Tongans had one good result: Christianity had been introduced among them, and a party of missionaries followed them to Fiji. Their efforts have done much good. The Bible has been translated into a dialect generally understood throughout the group, and many of the arts of Christian civilization introduced. The last king of the group professed Christianity. In 1859, as a remedy against intestine disorders and to avert aggressive demands made by the American government, the king offered to resign the sovereignty of the islands to the Queen of England. This offer, after being several times repeated and declined, was at last accepted in 1874, and the Fiji Islands were accordingly made a crown colony. Since then the prosperity of the islands has been remarkable.

The following account of the political organization of the islands is given by Sir Arthur Gordon, the first governor of the colony. "The political unit is the village. In every one of these is found a local chief, practically hereditary, but nominally appointed by the district council, of which I shall hereafter speak. He is assisted by a council of elders and certain executive officers, a magistrate (frequently the chief's brother), one or more constables to carry out his decisions, a town-crier (a hereditary and important officer), and a garden overseer. . . . An uncertain number of villages—sometimes a few, sometimes many—are grouped together under a superior officer, the Buli of the district, who once a month assembles all his town chiefs, and discusses with them in the Bose ni Sikina, or district council, the affairs of his own district. . . . In a similar manner the Buli districts are grouped under the headship of a greater chief, the Roko Tui, of whom there are twelve, and each of whom twice a year assembles the Bulis of his province in the Bose vaka Tasana, or provincial council, where the local affairs of the province are discussed and settled, by which local rates are imposed, and to which each Buli makes a detailed report of the condition of his own district.

"This organization is purely native and of spontaneous growth. To it has now been added a meeting annually of the Roko Tuis, with myself, thus completing the chain from the village to the governor. This Bose vaka Turanga, or great council, is also attended by the native stipendiary magistrates, and by two Bulis from each province, chosen by the Bose vaka Tasana. At it each Roko Tui in turn makes a detailed report of the state of his province, and suggestions are offered as to executive and legislative measures which it is thought desirable by those assembled that the government should adopt. The suggestions made by the Bose vaka Turanga have received, and I think merited, the warm commendation of her majesty's government on account of the good sense and practical capacity for affairs therein displayed."

The only important town in the group is Levuka, on the island of Ovalau, which has a good harbour; but Suva, on Viti Levu, also possesses a good harbour, and is the rival of Levuka for official residences.

The total area of these islands is 8034 square miles; the population was estimated at a little under 150,000 in 1871, but shortly after it was greatly reduced by measles. In 1878 the native population was 110,000, the European 1842.

ROTUMAH, a small island about two degrees north of the Fiji group, has recently been made a British colony at the desire of the inhabitants.

POLYNESIA.

Polynesia (from the Greek *polys*, many, and *nēsos*, an island) is a name sometimes applied to the whole assemblage of small islands in the Pacific, but given in a narrower sense to the group lying to the east and north-east of Melanesia, mainly though not entirely between the equator and the southern tropic. The islands belonging to the group are mainly very small, so that although their number is large the aggregate area is less than 4000 square miles, or about one-twenty-fourth part of the area of Great Britain. The largest are **Savaii**, one of the Samoan Islands, with an area of 657 square miles, or rather more than twice that of Anglesey; and **Tahiti**, one of the Society Islands, belonging to the French, with an area of 402 square miles, or about one-third larger than that of Anglesey. The vegetable products used as food in this group are the same as in the last—yams, taro, sweet-potatoes, bananas, coco-nuts, bread-fruit, &c. The inhabitants are allied to the Malays, and are a much lighter coloured race than the Melanesians, and on many of the islands they are a fine-looking people both in form and feature. In their disposition they are much more accessible to Europeans and much gentler than the former race, and in point of civilization they are far ahead of them. They are all decently clothed in well-made garments of their own manufacture, which in itself is a proof that they are much further advanced in the arts than the Melanesians, and they practise agriculture on many of the islands with an amount of skill which is at any rate not surpassed (as it is seldom approached) on the Melanesian Islands. Accord-

ing to D'Urville even the public gardens of Europe do not show evidences of more careful attention than the fields of the **Tonga Islanders.** The mild disposition of the people generally has for the most part made it an easy matter to gain them over to Christianity, and the majority of the islands are accordingly already Christianized either through European or native missionaries. In the **Hervey** or **Cook** Islands, inhabited by the **Rarotongans,** the introduction of Christianity is said to have been followed by peculiarly favourable results. A civilization has been developed here such as is to be found nowhere else in Polynesia, and many native missionaries have here been trained who have taught Christianity with great success in other islands. The **Marquesas Islands** are the only important group the inhabitants of which have not yet been induced to give up their heathen practices. The great majority of the Polynesian Christians are Protestants. Roman Catholic missionaries have not as a rule been very successful, and even on Tahiti, where the influence of the French authorities has been used to support the missionaries of that creed, in consequence of which the European Protestant missionaries have found it advisable to leave the island, the natives have remained attached to the Protestant creed, to which they had been gained over before the arrival of the Roman Catholics.

A Tahitian Family.

The eastern members of the **Society Islands,** including Tahiti, have been since 1842 in the hands of the French, who in the same year occupied the **Marquesas Islands,** and who also possess the **Gambier Islands** in the south of the **Low Archipelago** (near the Tropic of Capricorn, about 138° W.), and one or two members of the **Toubouai** or **Austral** group about twelve degrees further west. Under a treaty with Britain concluded in 1844 France was recognized as only having the protectorate over Tahiti, but in 1880 the island was formally annexed by France. All the islands except those mentioned are under native government. In the **Samoa** group, or **Navigators' Islands,** the present constitution was framed under European influence, and places the executive authority in a council composed of seven chiefs and the legislative in another council of chiefs, which with the help of the European consuls has promulgated a code of laws and introduced a capitation tax. The town of Apia, where most of the European establishments are to be found, has become one of the chief centres of commerce in Oceania.

The following table shows the area and estimated population of the different groups belonging to Polynesia:—

	Area in square miles.	Population.
Tonga Islands,[1]	385	25,000
Samoa or Navigators' Islands,[2]	1077	36,800
Scattered islands between the Tonga and Samoa groups, ...	166	16,064
Ellice, Union, and Phœnix groups,[3]	36	3,076
Maniluki and Fanning Islands,[4]	310	1,800
Cook or Hervey Islands,[5]	142	7,400
Toubouai or Austral group,[6]	110	1,350
Society Islands,[7]	637	27,000[12]
Marquesas Islands,[8]	492	5,754
Paumotu or Low Archipelago[9] (including Pitcairn Island[10] and Easter Island[11]), ...	425	6,162
Total (in round numbers), ...	3800	130,000

[1] East of the Fiji Islands. [2] North of the Tonga Islands. [3] North-west and north of the Samoa group. [4] Widely scattered islands east and north-east of the Union and Phœnix groups. [5] East of the Tonga Islands. [6] South-east of Cook Islands. [7] North-east of Cook Islands. [8] North-east of Society Islands. [9] South-east of Society Islands. The Low Archipelago is so called because it consists of low coral islands, mostly atolls, that is, ring-shaped islands with an area of water in the middle. [10] A lofty volcanic island in 25° 3′ S., 130° 8′ W., inhabited by some of the descendants of a small colony consisting of 9 English sailors, who had mutinied on board of a ship called the *Bounty*, 6 Tahitian men and 12 Tahitian women. The inhabitants were afterwards removed at their own request to Norfolk Island, but a number of them returned to Pitcairn Island. [11] A volcanic island rising to the height of 1200 feet, lying in 27° 6′ S., 109° 17′ W. [12] Of which about 24,000 belonged to the French members of the group.

MICRONESIA.

This name is applied to a group lying to the north of the Melanesian and north-west of the Polynesian group and consisting entirely of small islands. The name is derived from the Greek *mikros*, small, and *nēsos*, an island. They are almost all of coralline origin. The **Bonin** group, now belonging to Japan, to the north of the **Marianne** or **Ladrone Islands**, is volcanic, but the Ladrone Islands themselves consist mainly of coral limestone. Volcanic rocks are to be found among them only on **Guguan**. The **Caroline, Marshall,** and **Gilbert Islands** are for the most part either coral reefs or atolls (lagoon islands). The inhabitants of these islands are similar in appearance and character to those of Polynesia. On the Ladrone Islands, however, they have been greatly deteriorated through the influence of the Spanish, who began to establish Jesuit missions on the islands in the latter part of the seventeenth century. At that time the number of the natives was, according to the lowest estimate, from 40,000 to 60,000, and the skill and industry shown by them in agriculture and some of the mechanical arts are remarked on by several navigators of that period. When, however, the inhabitants, who had in the first instance received the Spanish settlers with good-will, perceived that these intruders were bent on their subjugation, they began to offer a determined resistance, which was met on the part of the Spanish by measures of the greatest cruelty. The native

population in consequence rapidly declined, until before the close of the eighteenth century it was reduced to less than 2000. Since then the population has been recruited by the repeated introduction of Tagals from the Philippine Islands, and in that way has been brought up to above 8000, but the inhabitants of the present day have none of the spirit, cheerfulness, and industry that characterized them in the seventeenth century. Spain also lays claim to the Caroline Islands, but these, like the other islands to the east, are practically independent. The inhabitants of all these islands, especially those of the Caroline group, are remarkably keen traders, exchanging among themselves boats, grinding-stones, curcuma, bamboos, mats, woven fabrics, and other products of the different islands, and supplying passing European ships with food-stuffs and commodities of various sorts in return for iron and iron utensils, arms, spirituous liquors, tissues, tobacco, bottles, &c. Whole fleets of Caroline boats visit **Guahan**, one of the Ladrones, every year; and even the Philippines are visited for the sake of the pearls to be found off their coasts. Christianity has been introduced to some extent by Protestant missionaries into the Caroline as well as the Gilbert and Marshall Islands.

SANDWICH ISLANDS.

The Sandwich Islands, so called by Capt. Cook, who rediscovered the group on his third voyage in 1778, after Lord Sandwich, under whose administration as first lord of the admiralty Cook "had enriched geography with so many splendid and important discoveries," are a group of considerable islands lying from about one to four and a half degrees south of the northern tropic, between about 155° and 160° w. lon., and stretching from north-west to south-east for about 350 miles. Their aggregate area is 6567 miles, or more than one-fourteenth of the size of Great Britain; the area of the largest island, **Hawaii**, which often gives its name to the whole group, 4384 square miles, or rather larger than the combined counties of Devon and Somerset; and the areas of those next in size, namely, **Oahu**, **Kauai**, and **Maui**, respectively 649, 547, and 490 square miles, the largest of these being more than twice the size of Anglesey. The total population is about 58,000, or less than 9 to the square mile.

The situation of the group relatively to America, Asia, and Australasia is well fitted to secure for it the important place that it has actually acquired in the commerce of the world. The surrounding seas are safe, and the coasts of the islands, though almost uniformly steep and high, are only to a limited extent fringed by coral reefs. All the islands are mountainous, and the mountains of the eastern members of the group are of great height, Mauna Loa in Hawaii rising to 13,760 feet. The rocks of which the mountains are composed are volcanic, the lava mainly basaltic, while the core consists chiefly of trachyte and phonolite. The eastern islands have both active and extinct volcanoes and exhibit volcanic phenomena of extraordinary magnificence. Hawaii itself has

no less than three active volcanoes, one of which is the mountain already mentioned, and the widespread deposits of lava that have proceeded from these have rendered a large part of the island sterile and uninhabitable. The crater of Kilauea in the south of the island, though merely a secondary crater belonging to the volcano of Mauna Loa, is the largest and most remarkable in the world, and the most wonderful sight in the island. Its bottom has a circumference of about seven miles, and in its southern part lies a large lake of molten boiling lava. Slight shocks of earthquake are not infrequent in the group.

The climate of the Sandwich Islands is pleasant and healthy, but varies in

Kealakeakua Bay (island of Hawaii), where Captain Cook was killed (1779).

its character with the elevation. On the coast plains it is mostly dry and hot, on the lower slopes of the mountains hot and moist, on the higher slopes temperate and dry. At Honolulu the mean day temperature is about 75° Fahr. The islands lie within the range of the north-east trade-wind, which blows very steadily during the summer, but in winter often gives place to south and south-west winds, which are accompanied by dull and wet weather.

The vegetation of the group is highly peculiar, and, compared with that of other groups similarly situated, remarkably varied. Setting aside those plants which are believed to have been introduced by man it is found that more than three-fifths of the phanerogamous plants and ferns belonging to the group are confined to it. Among the Lobeliaceæ, which are very abundantly represented, there are some strikingly peculiar species of Lobelia—woody shrubs from six to twenty feet in height, and one even a tree growing to the height of forty feet.

The affinities of the Sandwich flora are very wide, yet there is a total absence of a large number of families found in the southern islands of Oceania. As on the Fiji Islands vegetation is much richer on the east than on the west, and from the same cause. The fauna of the Sandwich group, like that of all islands which never seem to have belonged to any continent, is totally wanting in native mammals, and is in general scanty. One peculiarity of it is the very large amount of specialization among its land-shells. The European domestic animals have all been introduced, and some now run wild.

The people are of the same light-coloured race as is found in the island groups last treated of, and like them are remarkable for their cheerfulness, kindliness, and accessibility. No Polynesians have shown greater readiness to maintain intercourse with whites, and since the time of Kamehameha I., who founded the present Hawaian state towards the close of last century, a colony of whites (Americans, British, Portuguese, Germans, French, &c.) has existed on the islands and has gradually acquired a greater and greater amount of influence. Protestant missionaries came to the group about 1820, and being encouraged by members of the royal family had little difficulty in introducing Christianity among the natives. In 1837 they were followed by Roman Catholics, who also met with success in their efforts, and at present about two-thirds of the people are Protestants, the remainder Roman Catholics. In 1852 the king, then an absolute monarch, granted to the people a constitution of a very democratic kind on the European model, but in 1864 modifications were introduced making it less democratic. A property qualification was established both for electors and representatives, and vote by ballot was adopted. The executive is for the most part intrusted to people of European race, who are also employed in many departments of the administration.

The colonists of European race have established in the larger islands sugar, coffee, cotton, orange and other plantations, on which Chinese are employed as labourers. The natives still cultivate chiefly taro, sweet-potatoes, yams, and bananas, and their agricultural skill excited long ago the admiration of visitors to the islands. As on New Caledonia the hill-slopes are laid out in well formed terraces to form taro-fields, and the springs and streams are utilized with much ingenuity to supply them with water. Since the arrival of the Europeans, however, the condition of the people generally has sunk in comparison with what it was in heathen times. The higher classes have indeed become quite Europeanized in their manners, opinions, and mode of life, but the common people are poorer and more wretched than they were before, and are said to compare very unfavourably with some other Polynesian peoples, such as the Tongans and Rarotongans. A striking indication of this general wretchedness is to be found in the rapid decline of their number as shown by successive enumerations. In 1832 the number of the inhabitants was given at 130,313; in 1850, at 84,165, of whom 1962 were foreigners; in 1878, 57,985, of whom 13,897 were foreigners (5916 Chinese). The particular causes assigned for this decline are the spread of diseases contracted from Europeans, but still more the prevalent habits of licentiousness and drunkenness, and the frequency of child-murder.

The capital of the group is Honolulu, an agreeably built town, situated on the island of Oahu, which besides being politically and commercially the most important member of the group, is also one of the most fertile and the best cultivated. Honolulu has an admirable harbour protected by a barrier reef. Its population in 1878 was 14,114, which included 3531 foreigners.

ISLANDS IN THE INDIAN OCEAN.

TO THE SOUTH OF THE TROPIC OF CAPRICORN.

Of these islands the northernmost are the two small adjacent rocky islets of **New Amsterdam** and **St. Paul**, lying about lat 38° S., nearly midway between Australia and Africa. They are regarded as subject to the British governor of Mauritius. The most westerly are the **Prince Edward Islands**, lying south-eastwards from South Africa, two islands having together an area of about 160 square miles. Further east are the **Crozet Islands**, a group of five with sharp volcanic peaks, the whole area being about 200 square miles. Still further east and more to the south lies **Kerguelen Island**, the largest of all, being above 1300 square miles in extent. Like all the others it is lofty and rocky, and its vegetation is extremely scanty, but it has an excellent natural harbour (Christmas Harbour), and rich beds of coal, which may confer some importance on it. **Macdonald Island** and **Heard Island** lie further to the south. The latter rises to upwards of 6000 feet in height. All the islands are without permanent inhabitants.

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